

# SQLC-110L COMMUNICATION SPECIFICATION

(Modbus RTU mode protocol)

〔 HARDWARE MODEL B  
HARDWARE MODEL E 〕

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## 1. Communication specification

| Item                   | Specification                              |                                             | Default setting |
|------------------------|--------------------------------------------|---------------------------------------------|-----------------|
| Standard               | EIA/TIA RS-485(1983)                       |                                             | —               |
| Protocol (1)           | Modbus protocol RTU mode                   |                                             | ver. B          |
|                        | ver. A (2)                                 | Use function code : 02H, 03H, 04H, 06H, 08H |                 |
|                        | ver. B                                     | Use function code : 03H, 04H, 06H, 08H      |                 |
| Transmission system    | Half-duplex two-wire system                |                                             | —               |
| Synchronous system     | Asynchronous communication method          |                                             | —               |
| Transmission rate (1)  | 4800bps / 9600bps / 19200bps / 38400bps    |                                             | 9600bps         |
| Modulation code        | NRZ                                        |                                             | —               |
| Start bit              | 1 bit                                      |                                             | —               |
| Data length            | 8 bits                                     |                                             | —               |
| Parity (1)             | NONE / Even number / Odd number            |                                             | Even number     |
| Stop bit (1)           | 1 bit / 2 bit                              |                                             | 1 bit           |
| Cable length           | 1000m (The total extension)                |                                             | —               |
| Address (1)            | 1~247 (Connection is possible to 31 sets.) |                                             | 1               |
| Error detection        | CRC-16 ( $X^{16} + X^{15} + X^2 + 1$ )     |                                             | —               |
| Transmission character | Binary                                     |                                             | —               |

Transmission data are sent out from a bit 0.

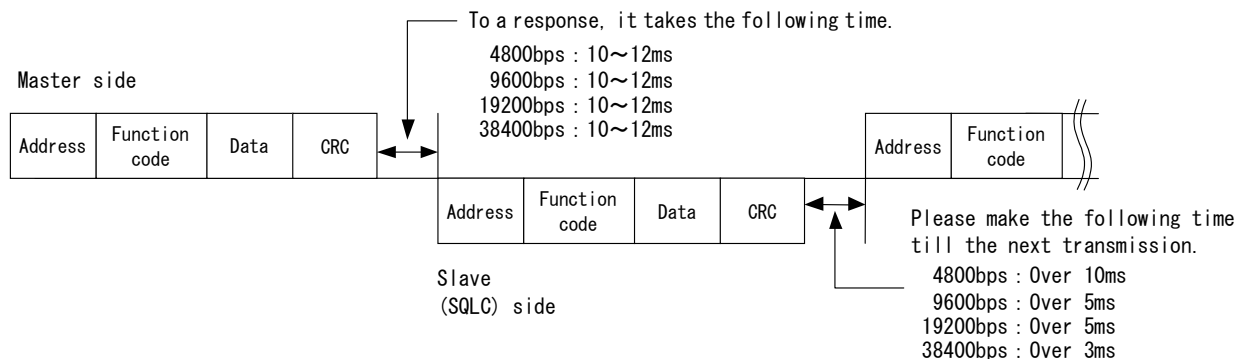
Note(1) A setting change is made with a front switch.

Note(2) In the case of Modbus-IDA standard compliance protocol, please use it by ver.B.

In function codes 02H and 04H, ver.A is different from a Modbus-IDA standard in part.

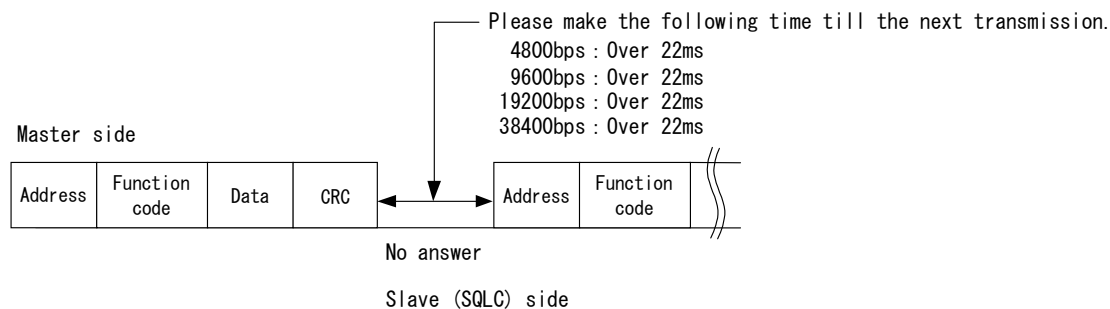
## 2. Transmission and reception protocol

## (1) The usual request (Query)



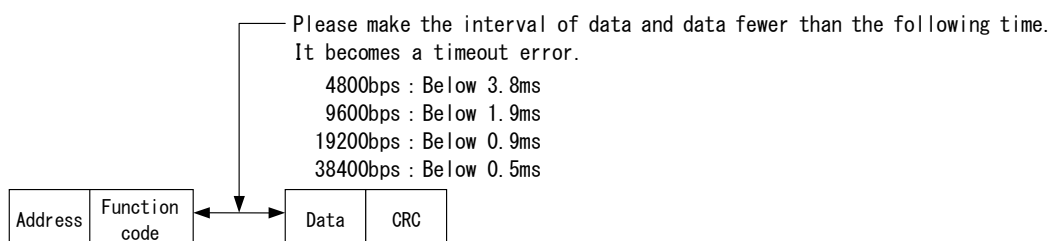
## (2) The request of broadcast (Query)

It will become a broadcast request if all station are designated as an address. At this case, a slave side becomes a no response.



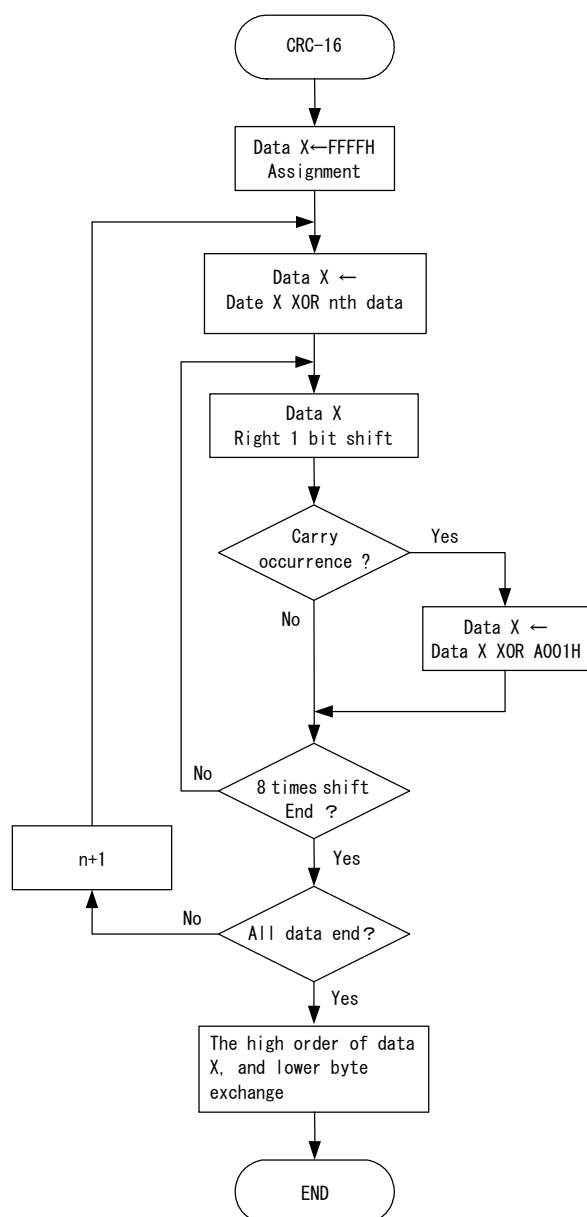
### (3) The timeout between data

It is necessary to make the interval of data and data into 1.5 or less characters.



### 3. Calculation method of CRC-16

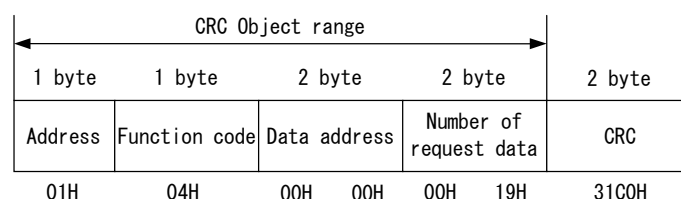
CRC-16 is adopted as error checking in Modbus RTU mode. An address, a function code, and data are calculated by the following method.



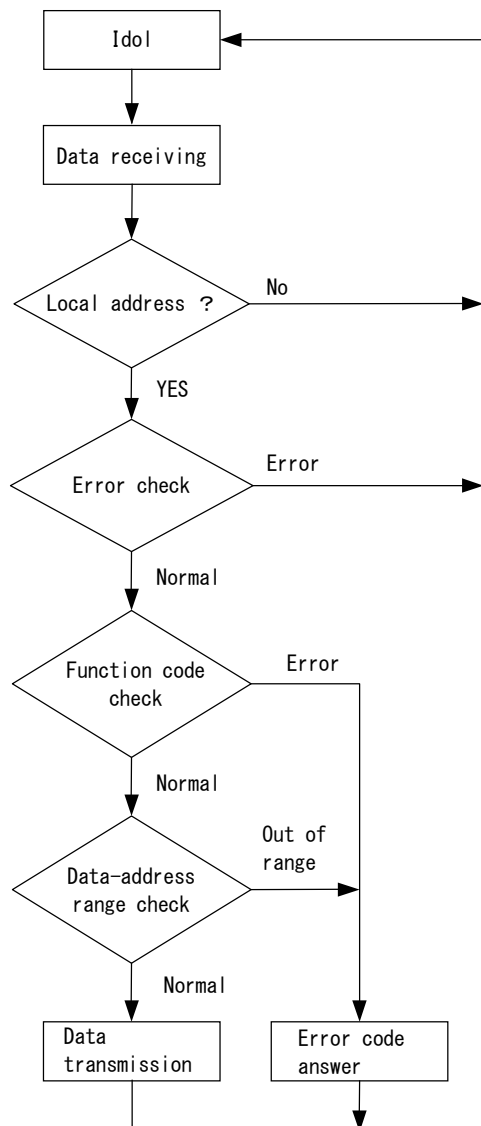
#### (1) Arithmetic process

- ① 2 bytes of data-area X is secured to a CRC calculation.
- ② FFFFH is substituted for ① as initial value.
- ③ XOR of data X and the nth data (n= 1) is calculated. It assigns for data X.
- ④ The 1-bit shift right of the data X is done.
- ⑤ If carry occurs in operation of ④, data X and XOR of A001H are taken.
- ⑥ Operation of ④~⑤ is repeated until it shifts 8 times.
- ⑦ XOR of the next data (n+1) and Data X is calculated. It assigns for Data X.
- ⑧ Operation of ④~⑦ is repeated until processing of all data is completed.
- ⑨ 1 byte of high rank and 1 byte of low rank of data-area X for a CRC calculation are replaced.

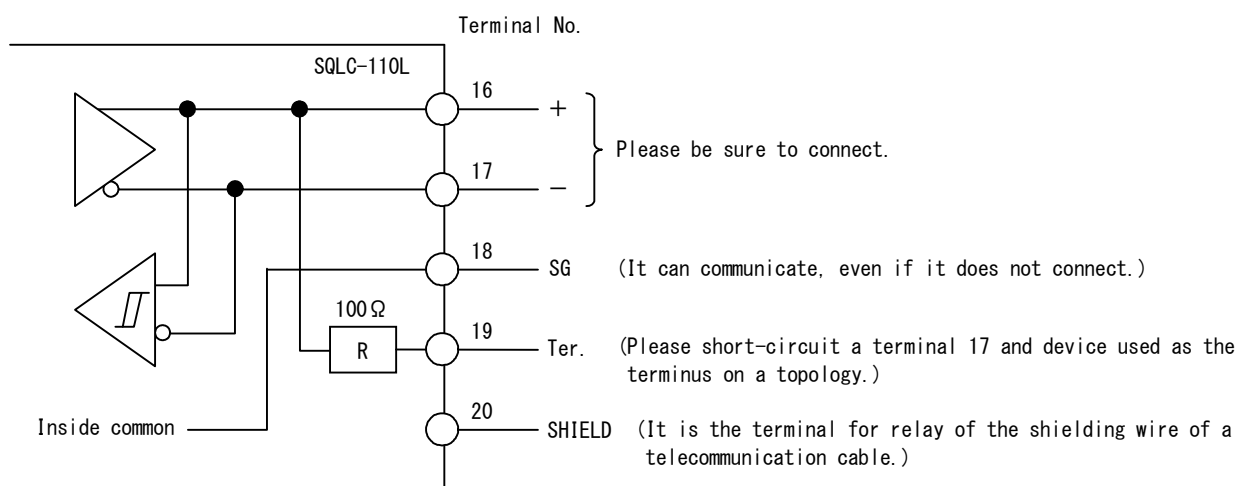
#### (2) The example of calculation



## 4. Communication process flow chart



## 5. SQLC communication specification terminal arrangement



## 6. Modbus protocol RTU mode ver.A

## 6.1 Function code

The next function code is supported with this product.

| Code | Name                      | Data address | Contents                                                                                  | Modbus original function            |
|------|---------------------------|--------------|-------------------------------------------------------------------------------------------|-------------------------------------|
| 02   | Status request            | 10001~       | The status readout of alarm output.                                                       | Input-state readout                 |
| 03   | Measurement range request | 40001~       | VT ratio, CT ratio and the readout of multiplying factor.                                 | Holding register readout            |
|      | Setting value request     | 40101~       | The readout of setting value (measurement, alarm).                                        |                                     |
|      | Model information request | 40501~       | The readout of model information (type code, phase wire, rated voltage).                  |                                     |
| 04   | Measurement value request | 30001~       | The readout of general measurement value (instant value / maximum value / minimum value). | Input-register readout              |
|      |                           | 30201~       | The readout of harmonic measurement value (voltage).                                      |                                     |
|      |                           | 30401~       | The readout of harmonic measurement value (voltage, maximum value).                       |                                     |
|      |                           | 30601~       | The readout of harmonic measurement value (current).                                      |                                     |
|      |                           | 30801~       | The readout of harmonic measurement value (current, maximum value).                       |                                     |
| 06   | Maximum, Minimum reset    | 40301~       | Reset of the maximum value and the minimum value is performed.                            | Writing of simplex holding register |
| 08   | Loopback test             | —            | The communication test of master and slave is performed.                                  | Diagnosis                           |

## 6.2 Abnormal response

In case the message transmitted from the master is judged to be abnormal, this product does the next abnormal answer.

## (1) In case it becomes a no answer

- ① : In case a message transmission error occurs. (Overrun, Framing, Parity error, CRC)
- ② : In case the data interval of a message exceeds a regulation value (1.5 characters).
- ③ : In case the message frame exceeding 8 bytes is received.

## (2) In case as answered in an error code.

In the error that does not correspond to (1), the following abnormal response is returned.

At this case, the code that applied 80H to the code of a demand is returned to a function code.

And, the generated error code is returned as data.

## Error code list

| Error code | Contents                                                                                 | 1 byte  | 1 byte               | 1 byte     | 2 byte |
|------------|------------------------------------------------------------------------------------------|---------|----------------------|------------|--------|
| 01H        | The function code besides regulation is received.                                        | Address | Function code (+80H) | Error code | CRC    |
| 02H        | A data address is out of range.                                                          |         |                      |            |        |
| 03H        | The data more than the number of answer data are required. Setting out of setting range. |         |                      |            |        |
|            |                                                                                          | 01H     | 84H                  | 02H        | C2C1H  |

### 6.3 Status request

It is used for reading the status of this product. There is no broadcast. A function code designates 02H.

#### (1) The request of data (Query)

In case it performs a status request, it is necessary to designate the data address of data to acquire. When a data address is transmitted, please subtract 10001 from the address of a data-address list. The number of data should designate the tale of the data to request.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 02H           | 0000H        |   | 0001H          |   | B9CAH |   |

#### Data address list

| Function code | Data address | Model                  |                     |                     |                |
|---------------|--------------|------------------------|---------------------|---------------------|----------------|
|               |              | 3-phase 3-wire         | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire |
| 02H           | 10001        | Status of alarm output |                     |                     |                |

#### (2) Response

If status request is performed normally, the following response will be returned from this product side.

Example) Data address : 10001, Number of data : 1.

| 1       | 2             | 3                 | 4                 | 5 | 6   | 7 |
|---------|---------------|-------------------|-------------------|---|-----|---|
| Address | Function code | Answer byte count | Alarm-output data |   | CRC |   |

#### ● Bit allocation of alarm-output data

| B15 | B14 | B13 | B12 | B11 | B10 | B9 | B8 | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 |
|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|
| —   | —   | —   | —   | —   | —   | —  | ②  | —  | —  | —  | —  | —  | —  | —  | ①  |

| Bit | Name           | OFF (0)      | ON (1)    |
|-----|----------------|--------------|-----------|
| ①   | Alarm output 1 | No detection | Detection |
| ②   | Alarm output 2 |              |           |

#### 6.4 Measurement range request

It is used for reading measurement-range information, such as VT and CT ratio, in this product.  
There is no broadcast. A function code designates 03H.

##### (1) The request of data (Query)

In case it performs a range request, it is necessary to designate the start address of data to acquire.  
When a data address is transmitted, please subtract 40001 from the address of a data-address list.  
The number of data should designate the tale of the data to request.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 03H           | 0000H        |   | 0003H          |   | 05CBH |   |

##### Data address list

| Function code | Data address | Model              |                     |                     |                |
|---------------|--------------|--------------------|---------------------|---------------------|----------------|
|               |              | 3-phase 3-wire     | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire |
| 03H           | 40001        | VT ratio           |                     |                     |                |
|               | 40003        | CT ratio           |                     |                     |                |
|               | 40005        | Multiplying factor |                     |                     |                |

##### (2) Response

If a range request is performed normally, the following response will be returned from this product side.

Example) Data address : 40001, Number of data : 3.

| 1       | 2             | 3                 | 4        | 5 | 6        | 7 | 8                  | 9 | 10  | 11 |
|---------|---------------|-------------------|----------|---|----------|---|--------------------|---|-----|----|
| Address | Function code | Answer byte count | VT ratio |   | CT ratio |   | Multiplying factor |   | CRC |    |



● VT ratio, CT ratio

VT ratio data = Primary rated value  $\div$  110V

CT ratio data = Primary rated value  $\div$  5A  $\times$  10 <sup>(3)</sup>

| Primary rated<br>(V) | Setting value<br>data | Primary rated<br>(A) | Setting value<br>data | Primary rated<br>(A) | Setting value<br>data |
|----------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|
| 110                  | 0001H (1)             | 5                    | 000AH (10)            | 1500                 | 0BB8H (3000)          |
| 220                  | 0002H (2)             | 6                    | 000CH (12)            | 1600                 | 0C80H (3200)          |
| 380 <sup>(4)</sup>   | 0003H (3)             | 7.5                  | 000FH (15)            | 1800                 | 0E10H (3600)          |
| 440                  | 0004H (4)             | 8                    | 0010H (16)            | 2000                 | 0FA0H (4000)          |
| 460 <sup>(4)</sup>   | 0005H (5)             | 10                   | 0014H (20)            | 2500                 | 1388H (5000)          |
| 480 <sup>(4)</sup>   | 0006H (6)             | 12                   | 0018H (24)            | 3000                 | 1770H (6000)          |
| 880                  | 0008H (8)             | 15                   | 001EH (30)            | 4000                 | 1F40H (8000)          |
| 1100                 | 000AH (10)            | 20                   | 0028H (40)            | 5000                 | 2710H (10000)         |
| 1650                 | 000FH (15)            | 25                   | 0032H (50)            | 6000                 | 2EE0H (12000)         |
| 2200                 | 0014H (20)            | 30                   | 003CH (60)            | 7500                 | 3A98H (15000)         |
| 3300                 | 001EH (30)            | 40                   | 0050H (80)            | 8000                 | 3E80H (16000)         |
| 6600                 | 003CH (60)            | 50                   | 0064H (100)           | 9000                 | 4650H (18000)         |
| 11k                  | 0064H (100)           | 60                   | 0078H (120)           | 10000                | 4E20H (20000)         |
| 13.2k                | 0078H (120)           | 75                   | 0096H (150)           | 12000                | 5DC0H (24000)         |
| 13.8k <sup>(4)</sup> | 007DH (125)           | 80                   | 00A0H (160)           | 15000                | 7530H (30000)         |
| 16.5k                | 0096H (150)           | 100                  | 00C8H (200)           | 20000                | 9C40H (40000)         |
| 18.4k <sup>(4)</sup> | 00A7H (167)           | 120                  | 00F0H (240)           | 30000                | EA60H (60000)         |
| 22k                  | 00C8H (200)           | 150                  | 012CH (300)           |                      |                       |
| 33k                  | 012CH (300)           | 200                  | 0190H (400)           |                      |                       |
| 66k                  | 0258H (600)           | 250                  | 01F4H (500)           |                      |                       |
| 77k                  | 02BCH (700)           | 300                  | 0258H (600)           |                      |                       |
| 110k                 | 03E8H (1000)          | 400                  | 0320H (800)           |                      |                       |
| 132k                 | 04B0H (1200)          | 500                  | 03E8H (1000)          |                      |                       |
| 154k                 | 0578H (1400)          | 600                  | 04B0H (1200)          |                      |                       |
| 187k                 | 06A4H (1700)          | 750                  | 05DCH (1500)          |                      |                       |
| 220k                 | 07D0H (2000)          | 800                  | 0640H (1600)          |                      |                       |
| 275k                 | 09C4H (2500)          | 900                  | 0708H (1800)          |                      |                       |
| 380k <sup>(4)</sup>  | 0D7FH (3455)          | 1000                 | 07D0H (2000)          |                      |                       |
| 550k                 | 1388H (5000)          | 1200                 | 0960H (2400)          |                      |                       |

The number of ( ) expresses decimal number data.

Note<sup>(3)</sup> In case of 1A input specification, they output it as CT ratio data = Primary rated value  $\div$  5A  $\times$  10.

Note<sup>(4)</sup> Because broken numbers will occur if it divides by 110V, it becomes intrinsic set-value data.

● Multiplying factor

| Multiplying factor | Communication data |
|--------------------|--------------------|
| $\times 0.01$      | 0005H (5)          |
| $\times 0.1$       | 0006H (6)          |
| $\times 1$         | 0000H (0)          |
| $\times 10$        | 0001H (1)          |
| $\times 100$       | 0002H (2)          |
| $\times 1000$      | 0003H (3)          |
| $\times 10000$     | 0004H (4)          |

The number of ( ) expresses decimal number data.

## 6.5 Setting value request

It is used for reading set value (measurement, alarm) from this product.  
There is no broadcast. A function code designates 03H.

### (1) The request of data (Query)

In case it performs setting value requirements, it is necessary to designate the start address of data to acquire.  
When a data address is transmitted, please subtract 40001 from the address of a data-address list.  
The number of data should designate the tale of the data to request.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 03H           | 0064H        |   | 000EH          |   | 85D1H |   |

### Data address list

| Function code | Data address | Model                                                      |                     |                     |                  |
|---------------|--------------|------------------------------------------------------------|---------------------|---------------------|------------------|
|               |              | 3-phase 3-wire                                             | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire   |
| 03H           | 40101        | Alarm output 1 Output factor                               |                     |                     |                  |
|               | 40103        | Alarm output 2 Output factor                               |                     |                     |                  |
|               | 40105        | Alarm output Reset method                                  |                     |                     |                  |
|               | 40107        | Alarm output 1 Contact delay time                          |                     |                     |                  |
|               | 40109        | Alarm output 2 Contact delay time                          |                     |                     |                  |
|               | 40111        | Demand current Upper limit value                           |                     |                     |                  |
|               | 40113        | Demand current Time interval                               |                     |                     |                  |
|               | 40115        | Demand power Upper limit value                             |                     |                     |                  |
|               | 40117        | Demand power Time interval                                 |                     |                     |                  |
|               | 40119        | Demand power Operation method                              |                     |                     |                  |
|               | 40121        | Demand power Power factor operation method                 |                     |                     |                  |
|               | 40123        | Harmonic distortion factor upper limit (current)           |                     |                     |                  |
|               | 40125        | Harmonic 5th conversion content rate upper limit (current) |                     |                     |                  |
|               | 40127        | Harmonic nth content rate factor (current)                 |                     |                     |                  |
|               | 40129        | Harmonic nth content rate upper limit value (current)      |                     |                     |                  |
|               | 40131        | Harmonic distortion factor upper limit (voltage)           |                     |                     |                  |
|               | 40133        | Harmonic 5th conversion content rate upper limit (voltage) |                     |                     |                  |
|               | 40135        | Harmonic nth content rate factor (voltage)                 |                     |                     |                  |
|               | 40137        | Harmonic nth content rate upper limit value (voltage)      |                     |                     |                  |
|               | 40139        | Harmonic 5th conversion detection characteristics          |                     |                     |                  |
|               | 40141        | Harmonic average value time interval                       |                     |                     |                  |
|               | 40143        | Instantaneous detection Voltage upper limit value          |                     |                     |                  |
|               | 40145        | Instantaneous detection Voltage lower limit value          |                     |                     |                  |
|               | 40147        | Leakage detection Rated sensitivity current value          |                     |                     | 0000H (Fixation) |
|               | 40149        | Leakage detection Factor switching                         |                     |                     | 0000H (Fixation) |
|               | 40151        | Leakage detection Circuit switching                        |                     |                     | 0000H (Fixation) |
|               | 40153        | Leakage detection Use ZCT selection                        |                     |                     | 0000H (Fixation) |
|               | 40155        | Tidal current measurement                                  |                     |                     |                  |

## (2) Response

If a setting value request is performed normally, the following response will be returned from this product side.

Example) Data address : 40101, Number of data : 14. (General measurement value).

|                                                  |               |                                                            |                              |                                            |                              |                            |                           |                               |                                   |                                            |                                   |    |
|--------------------------------------------------|---------------|------------------------------------------------------------|------------------------------|--------------------------------------------|------------------------------|----------------------------|---------------------------|-------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------|----|
| 1                                                | 2             | 3                                                          | 4                            | 5                                          | 6                            | 7                          | 8                         | 9                             | 10                                | 11                                         | 12                                | 13 |
| Address                                          | Function code | Answer byte count                                          | Alarm output 1 output factor |                                            | Alarm output 2 output factor |                            | Alarm output reset method |                               | Alarm output 1 Contact delay time |                                            | Alarm output 2 Contact delay time |    |
|                                                  |               |                                                            |                              |                                            |                              |                            |                           |                               |                                   |                                            |                                   |    |
| 14                                               | 15            | 16                                                         | 17                           | 18                                         | 19                           | 20                         | 21                        | 22                            | 23                                | 24                                         | 25                                |    |
| Demand current upper limit value                 |               | Demand current time interval                               |                              | Demand power upper limit value             |                              | Demand power time interval |                           | Demand power operation method |                                   | Demand power Power factor operation method |                                   |    |
|                                                  |               |                                                            |                              |                                            |                              |                            |                           |                               |                                   |                                            |                                   |    |
| 26                                               | 27            | 28                                                         | 29                           | 30                                         | 31                           | 32                         | 33                        |                               |                                   |                                            |                                   |    |
| Harmonic distortion factor upper limit (current) |               | Harmonic 5th conversion content rate upper limit (current) |                              | Harmonic nth content rate factor (current) |                              | CRC                        |                           |                               |                                   |                                            |                                   |    |

● Setting value data

## (1) Alarm output 1,2 output factor

| Communication data | Contents of output                             |
|--------------------|------------------------------------------------|
| 0000H              | Alarm OFF                                      |
| 0001H              | Demand current                                 |
| 0002H              | Demand power                                   |
| 0003H              | Current leakage                                |
| 0004H              | Distortion factor (current)                    |
| 0005H              | Harmonic 5th conversion content rate (current) |
| 0006H              | Harmonic nth content rate (current)            |
| 0007H              | Distortion factor (voltage)                    |
| 0008H              | Harmonic 5th conversion content rate (voltage) |
| 0009H              | Harmonic nth content rate (voltage)            |
| 000AH              | voltage                                        |

Those without an alarm output, "0000H" is returned.

## (2) Alarm output reset method

|     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|
| B15 | B14 | B13 | B12 | B11 | B10 | B9 | B8 | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 |
| —   | —   | —   | —   | —   | —   | —  | ②  | —  | —  | —  | —  | —  | —  | —  | ①  |

| No. | Reset factor   |
|-----|----------------|
| ①   | Ⓐ : Auto reset |
| ②   | Alarm 2        |

0 : Auto reset  
1 : Manual reset

Those without an alarm output, "0000H" is returned.

## (3) Alarm output 1,2 contact delay time

Contact delay time (s) = Communication data

| Contact delay time | Communication data  |
|--------------------|---------------------|
| 0~300s (1s step)   | 0000H~012CH (0~300) |

Those without an alarm output, "0000H" is returned.

## (4) Demand current upper limit value

Demand current upper limit value = Communication data

| Upper limit value     | Communication data                    |
|-----------------------|---------------------------------------|
| 5~100% (1% step), OFF | 0005H~0064H (5~100), OFF : 0065H(101) |

## (5) Demand current time interval

Demand current time interval = Communication data

| Time interval | Communication data | Time interval | Communication data | Time interval | Communication data |
|---------------|--------------------|---------------|--------------------|---------------|--------------------|
| 0 second      | 0000H (0)          | 1 minute      | 003CH (60)         | 8 minutes     | 01E0H (480)        |
| 5 seconds     | 0005H (5)          | 2 minutes     | 0078H (120)        | 9 minutes     | 021CH (540)        |
| 10 seconds    | 000AH (10)         | 3 minutes     | 00B4H (180)        | 10 minutes    | 0258H (600)        |
| 20 seconds    | 0014H (20)         | 4 minutes     | 00F0H (240)        | 15 minutes    | 0384H (900)        |
| 30 seconds    | 001EH (30)         | 5 minutes     | 012CH (300)        | 20 minutes    | 04B0H (1200)       |
| 40 seconds    | 0028H (40)         | 6 minutes     | 0168H (360)        | 25 minutes    | 05DCH (1500)       |
| 50 seconds    | 0032H (50)         | 7 minutes     | 01A4H (420)        | 30 minutes    | 0708H (1800)       |

## (6) Demand power upper limit value

Demand power upper limit value = Communication data

| Upper limit value     | Communication data                     |
|-----------------------|----------------------------------------|
| 5~100% (1% step), OFF | 0005H~0064H (5~100), OFF : 0065H (101) |

## (7) Demand power time interval

Demand power time interval = Communication data

| Time interval | Communication data | Time interval | Communication data | Time interval | Communication data |
|---------------|--------------------|---------------|--------------------|---------------|--------------------|
| 0 second      | 0000H (0)          | 1 minute      | 003CH (60)         | 8 minutes     | 01E0H (480)        |
| 5 seconds     | 0005H (5)          | 2 minutes     | 0078H (120)        | 9 minutes     | 021CH (540)        |
| 10 seconds    | 000AH (10)         | 3 minutes     | 00B4H (180)        | 10 minutes    | 0258H (600)        |
| 20 seconds    | 0014H (20)         | 4 minutes     | 00F0H (240)        | 15 minutes    | 0384H (900)        |
| 30 seconds    | 001EH (30)         | 5 minutes     | 012CH (300)        | 20 minutes    | 04B0H (1200)       |
| 40 seconds    | 0028H (40)         | 6 minutes     | 0168H (360)        | 25 minutes    | 05DCH (1500)       |
| 50 seconds    | 0032H (50)         | 7 minutes     | 01A4H (420)        | 30 minutes    | 0708H (1800)       |

## (8) Demand power operation method

| Operation method                                     | Communication data |
|------------------------------------------------------|--------------------|
| The operation method tailored to the bimetallic type | 0001H              |
| The averaging operator in a demand time interval     | 0002H              |

## (9) Demand power, power factor operation method

| Power factor operation method                    | Communication data |
|--------------------------------------------------|--------------------|
| Instantaneous measurement                        | 0001H              |
| The averaging operator in a demand time interval | 0002H              |

## (10) Harmonic distortion factor upper limit (Current)

Distortion factor upper limit (current) = Communication data ÷ 10

| Upper limit value         | Communication data                        |
|---------------------------|-------------------------------------------|
| 5.0~100.0% (1% step), OFF | 0032H~03E8H (50~1000), OFF : 03F2H (1010) |

## (11) Harmonic 5th conversion content rate upper limit value (Current)

5th conversion content upper limit value (Current) = Communication data ÷ 10

| Upper limit value         | Communication data                        |
|---------------------------|-------------------------------------------|
| 5.0~100.0% (1% step), OFF | 0032H~03E8H (50~1000), OFF : 03F2H (1010) |

## (12) Harmonic nth content rate factor (current)

| Factor | Communication data |
|--------|--------------------|
| 3th    | 0003H (3)          |
| 4th    | 0004H (4)          |
| 5th    | 0005H (5)          |
| 7th    | 0007H (7)          |
| 9th    | 0009H (9)          |
| 11th   | 000BH (11)         |
| 13th   | 000DH (13)         |
| 15th   | 000FH (15)         |

## (13) Harmonic nth content rate upper limit value (Current)

nth content rate upper limit value(current) = Communication data  $\div$  10

| Upper limit value         | Communication data                      |
|---------------------------|-----------------------------------------|
| 5.0~100.0% (1% step), OFF | 0032H~03E8H(50~1000), OFF : 03F2H(1010) |

## (14) Harmonic distortion factor upper limit value (Voltage)

Distortion factor upper limit value(voltage) = Communication data  $\div$  10

| Upper limit value          | Communication data                    |
|----------------------------|---------------------------------------|
| 1.0~20.0% (0.1% step), OFF | 000AH~00C8H(10~200), OFF : 00C9H(201) |

## (15) Harmonic 5th conversion content rate upper limit value (Voltage)

5th conversion content upper limit value (Voltage) = Communication data  $\div$  10

| Upper limit value          | Communication data                    |
|----------------------------|---------------------------------------|
| 1.0~20.0% (0.1% step), OFF | 000AH~00C8H(10~200), OFF : 00C9H(201) |

## (16) Harmonic nth content rate factor (Voltage)

| Factor | Communication data |
|--------|--------------------|
| 3th    | 0003H (3)          |
| 4th    | 0004H (4)          |
| 5th    | 0005H (5)          |
| 7th    | 0007H (7)          |
| 9th    | 0009H (9)          |
| 11th   | 000BH (11)         |
| 13th   | 000DH (13)         |
| 15th   | 000FH (15)         |

## (17) Harmonic nth content rate upper limit value (Voltage)

nth content rate upper limit value (Voltage) = Communication data  $\div$  10

| Upper limit value          | Communication data                    |
|----------------------------|---------------------------------------|
| 1.0~20.0% (0.1% step), OFF | 000AH~00C8H(10~200), OFF : 00C9H(201) |

## (18) Harmonic 5th conversion detection characteristics

| Detection characteristics | Communication data |
|---------------------------|--------------------|
| Average-value mode        | 0001H              |
| Inverse-time-delay mode   | 0002H              |

## (19) Harmonic average value time interval

Average value time interval = Communication data

| Time interval | Communication data |
|---------------|--------------------|
| 0 minute      | 0000H (0)          |
| 1 minutes     | 0001H (1)          |
| 2 minutes     | 0002H (2)          |
| 5 minutes     | 0005H (5)          |
| 10 minutes    | 000AH (10)         |
| 15 minutes    | 000FH (15)         |
| 30 minutes    | 001EH (30)         |

## (20) Instantaneous detection voltage upper limit value

Voltage upper limit value = Communication data

| Upper limit value      | Communication data                      |
|------------------------|-----------------------------------------|
| 30~150% (1% step), OFF | 001EH~0096H (30~150), OFF : 0097H (151) |

## (21) Voltage lower limit value

Voltage lower limit value = Communication data

| Lower limit value      | Communication data                     |
|------------------------|----------------------------------------|
| 30~150% (1% step), OFF | 001EH~0096H (30~150), OFF : 001DH (29) |

## (22) Leakage detection rated sensitivity current value

Rated sensitivity current value = Communication data × 100

| Rated sensitivity current value | Communication data |
|---------------------------------|--------------------|
| 0.03A                           | 0003H (3)          |
| 0.05A                           | 0005H (5)          |
| 0.1A                            | 000AH (10)         |
| 0.2A                            | 0014H (20)         |
| 0.4A                            | 0028H (40)         |
| 0.8A                            | 0050H (80)         |

3-phase 4-wire specification and 3-phase 3-wire 2VT3CT specification. The product without leakage measurement returns "0000H".

## (23) Leakage detection factor switching

| Factor          | Communication data |
|-----------------|--------------------|
| I <sub>o</sub>  | 0001H              |
| I <sub>gr</sub> | 0002H              |

3-phase 4-wire specification and 3-phase 3-wire 2VT3CT specification. The product without leakage measurement returns "0000H".

## (24) Leakage detection circuit switching

| Circuit                                    | Communication data |
|--------------------------------------------|--------------------|
| 1-phase earthing                           | 0001H              |
| 1-phase earthing (Negative phase sequence) | 0002H              |
| Non-earthing                               | 0003H              |

3-phase 4-wire specification and 3-phase 3-wire 2VT3CT specification. The product without leakage measurement returns "0000H".

## (25) Leakage detection use ZCT

| Use ZCT                                 | Communication data |
|-----------------------------------------|--------------------|
| TYPE 0 (Recommendation products)        | 0001H              |
| TYPE 1 (Except recommendation products) | 0002H              |

3-phase 4-wire specification and those without leakage measurement return "0000H".

## (26) Tidal current measurement

| Measurement               | Communication data |
|---------------------------|--------------------|
| General measurement       | 0001H              |
| Tidal current measurement | 0002H              |

## 6.6 Model information request

It is used for reading model information, rated voltage, and the rated current in this product.  
There is no broadcast. A function code designates 03H.

### (1) The request of data (Query)

When a model information demand is performed, it is necessary to designate the start address of data to acquire.  
When a data address is transmitted, please subtract 40001 from the address of a data-address list.  
The number of data should designate the tale of the data to request.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 03H           | 01F4H        |   | 0003H          |   | 45C5H |   |

### Data address list

| Function code | Data address | Model                            |                     |                     |                |
|---------------|--------------|----------------------------------|---------------------|---------------------|----------------|
|               |              | 3-phase 3-wire                   | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire |
| 03H           | 40501        | Model information, Type code     |                     |                     |                |
|               | 40503        | Model information, Phase wire    |                     |                     |                |
|               | 40505        | Model information, Rated voltage |                     |                     |                |

### (2) Response

If a model information request is performed normally, the following response will be returned from this product side.

Example) Data address : 40501, Number of data : 3.

| 1       | 2             | 3                 | 4         | 5 | 6          | 7 | 8             | 9 | 10  | 11 |
|---------|---------------|-------------------|-----------|---|------------|---|---------------|---|-----|----|
| Address | Function code | Answer byte count | Type code |   | Phase wire |   | Rated voltage |   | CRC |    |

#### ● Model information. Type code

| Type | Communication data |
|------|--------------------|
| SQLC | 0010H              |

#### ● Model information. Phase wire

| Type                            | Communication data |
|---------------------------------|--------------------|
| Three-phase three-wire          | 0001H              |
| Single-phase three-wire (R-W-B) | 0002H              |
| Single-phase three-wire (R-W-Y) | 0003H              |
| Single-phase three-wire (Y-W-B) | 0004H              |
| Single-phase                    | 0005H              |
| Three-phase four-wire           | 0006H              |
| Three-phase three-wire 2VT3CT   | 0007H              |

#### ● Model information. Rated voltage.

| Rated voltage     | Communication data |
|-------------------|--------------------|
| AC110V or 110/√3V | 0001H              |
| AC220V or 220/√3V | 0002H              |
| AC440/√3V         | 0003H              |

## 6.7 Measurement value request

It is used for reading a measurement value in this product.

There is no broadcast. A function code designates 04H.

### (1) The request of data (Query)

In case it performs setting value request, it is necessary to designate the start address of data to acquire. If a data address is transmitted, please subtract 30001 from the address of a data-address list.

The number of data should designate the tale of the data to request.

< Caution > Electric energy (Wh, varh) is treated as one-line data by 4 bytes. And, the point (data 0000H fixation) where a measurement value does not exist depending on a phase wire is also treated as one data.

< Caution > As for a general measurement value and harmonic measurement value (current / voltage) and harmonic measurement value (current / voltage, maximum value), addresses are different. Therefore, it cannot read by data request once. Please perform a data request individually.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 04H           | 0000H        |   | 0019H          |   | 31C0H |   |

Data-address list (1)

| Function code | Data address | Model                                    |                                          |                                          |                                          |
|---------------|--------------|------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
|               |              | 3-phase 3-wire                           | Single-phase 3-wire                      | Single-phase                             | 3-phase 4-wire                           |
| 04            | 30001        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                         | Voltage (RW)                             |
| 04            | 30003        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                         | Voltage (YW)                             |
| 04            | 30005        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                         | Voltage (BW)                             |
| 04            | 30007        | Voltage (RY)                             | Voltage (RW)                             | Voltage                                  | Voltage (RY)                             |
| 04            | 30009        | Voltage (YB)                             | Voltage (BW)                             | 0000H (Fixation)                         | Voltage (YB)                             |
| 04            | 30011        | Voltage (BR)                             | Voltage (RB)                             | 0000H (Fixation)                         | Voltage (BR)                             |
| 04            | 30013        | Current (R)                              | Current (R)                              | Current                                  | Current (R)                              |
| 04            | 30015        | Current (Y)                              | Current (W)                              | 0000H (Fixation)                         | Current (Y)                              |
| 04            | 30017        | Current (B)                              | Current (B)                              | 0000H (Fixation)                         | Current (B)                              |
| 04            | 30019        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                         | Current (W)                              |
| 04            | 30021        | Demand current (R)                       | Demand current (R)                       | Demand current                           | Demand current (R)                       |
| 04            | 30023        | Demand current (Y)                       | Demand current (W)                       | 0000H (Fixation)                         | Demand current (Y)                       |
| 04            | 30025        | Demand current (B)                       | Demand current (B)                       | 0000H (Fixation)                         | Demand current (B)                       |
| 04            | 30027        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                         | Demand current (W)                       |
| 04            | 30029        | Active power                             | Active power                             | Active power                             | Active power                             |
| 04            | 30031        | Demand power                             | Demand power                             | Demand power                             | Demand power                             |
| 04            | 30033        | Watt-hour                                | Watt-hour                                | Watt-hour                                | Watt-hour                                |
| 04            | 30035        | (Power receiving)<br>(2 bytes×2)         | (Power receiving)<br>(2 bytes×2)         | (Power receiving)<br>(2 bytes×2)         | (Power receiving)<br>(2 bytes×2)         |
| 04            | 30037        | Watt-hour                                | Watt-hour                                | Watt-hour                                | Watt-hour                                |
| 04            | 30039        | (Power transmission)<br>(2 bytes×2)      | (Power transmission)<br>(2 bytes×2)      | (Power transmission)<br>(2 bytes×2)      | (Power transmission)<br>(2 bytes×2)      |
| 04            | 30041        | Reactive power                           | Reactive power                           | Reactive power                           | Reactive power                           |
| 04            | 30043        | var-hour                                 | var-hour                                 | var-hour                                 | var-hour                                 |
| 04            | 30045        | (Power receiving LAG)<br>(2 bytes×2)     | (Power receiving LAG)<br>(2 bytes×2)     | (Power receiving LAG)<br>(2 bytes×2)     | (Power receiving LAG)<br>(2 bytes×2)     |
| 04            | 30047        | var-hour                                 | var-hour                                 | var-hour                                 | var-hour                                 |
| 04            | 30049        | (Power receiving LEAD)<br>(2 bytes×2)    | (Power receiving LEAD)<br>(2 bytes×2)    | (Power receiving LEAD)<br>(2 bytes×2)    | (Power receiving LEAD)<br>(2 bytes×2)    |
| 04            | 30051        | var-hour                                 | var-hour                                 | var-hour                                 | var-hour                                 |
| 04            | 30053        | (Power transmission LAG)<br>(2 bytes×2)  | (Power transmission LAG)<br>(2 bytes×2)  | (Power transmission LAG)<br>(2 bytes×2)  | (Power transmission LAG)<br>(2 bytes×2)  |
| 04            | 30055        | var-hour                                 | var-hour                                 | var-hour                                 | var-hour                                 |
| 04            | 30057        | (Power transmission LEAD)<br>(2 bytes×2) | (Power transmission LEAD)<br>(2 bytes×2) | (Power transmission LEAD)<br>(2 bytes×2) | (Power transmission LEAD)<br>(2 bytes×2) |
| 04            | 30059        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                         | Apparent power                           |



Data-address list (2)

| Function code | Data address | Model                      |                            |                         |                            |
|---------------|--------------|----------------------------|----------------------------|-------------------------|----------------------------|
|               |              | 3-phase 3-wire             | Single-phase 3-wire        | Single-phase            | 3-phase 4-wire             |
| 04            | 30061        | Power factor               | Power factor               | Power factor            | Power factor               |
| 04            | 30063        | Frequency                  | Frequency                  | Frequency               | Frequency                  |
| 04            | 30065        | Current leakage            | Current leakage            | Current leakage         | 0000H (Fixation)           |
| 04            | 30067        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Maximum voltage (RW)       |
| 04            | 30069        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Maximum voltage (YW)       |
| 04            | 30071        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Maximum voltage (BW)       |
| 04            | 30073        | Maximum voltage (RY)       | Maximum voltage (RW)       | Maximum voltage         | Maximum voltage (RY)       |
| 04            | 30075        | Maximum voltage (YB)       | Maximum voltage (BW)       | 0000H (Fixation)        | Maximum voltage (YB)       |
| 04            | 30077        | Maximum voltage (BR)       | Maximum voltage (RB)       | 0000H (Fixation)        | Maximum voltage (BR)       |
| 04            | 30079        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Minimum voltage (RW)       |
| 04            | 30081        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Minimum voltage (YW)       |
| 04            | 30083        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Minimum voltage (BW)       |
| 04            | 30085        | Minimum voltage (RY)       | Minimum voltage (RW)       | Minimum voltage         | Minimum voltage (RY)       |
| 04            | 30087        | Minimum voltage (YB)       | Minimum voltage (BW)       | 0000H (Fixation)        | Minimum voltage (YB)       |
| 04            | 30089        | Minimum voltage (BR)       | Minimum voltage (RB)       | 0000H (Fixation)        | Minimum voltage (BR)       |
| 04            | 30091        | Maximum current (R)        | Maximum current (R)        | Maximum current         | Maximum current (R)        |
| 04            | 30093        | Maximum current (Y)        | Maximum current (W)        | 0000H (Fixation)        | Maximum current (Y)        |
| 04            | 30095        | Maximum current (B)        | Maximum current (B)        | 0000H (Fixation)        | Maximum current (B)        |
| 04            | 30097        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Maximum current (W)        |
| 04            | 30099        | Minimum current (R)        | Minimum current (R)        | Minimum current         | Minimum current (R)        |
| 04            | 30101        | Minimum current (Y)        | Minimum current (W)        | 0000H (Fixation)        | Minimum current (Y)        |
| 04            | 30103        | Minimum current (B)        | Minimum current (B)        | 0000H (Fixation)        | Minimum current (B)        |
| 04            | 30105        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Minimum current (W)        |
| 04            | 30107        | Maximum demand current (R) | Maximum demand current (R) | Maximum demand current  | Maximum demand current (R) |
| 04            | 30109        | Maximum demand current (Y) | Maximum demand current (W) | 0000H (Fixation)        | Maximum demand current (Y) |
| 04            | 30111        | Maximum demand current (B) | Maximum demand current (B) | 0000H (Fixation)        | Maximum demand current (B) |
| 04            | 30113        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Maximum demand current (W) |
| 04            | 30115        | Minimum demand current (R) | Minimum demand current (R) | Minimum demand current  | Minimum demand current (R) |
| 04            | 30117        | Minimum demand current (Y) | Minimum demand current (W) | 0000H (Fixation)        | Minimum demand current (Y) |
| 04            | 30119        | Minimum demand current (B) | Minimum demand current (B) | 0000H (Fixation)        | Minimum demand current (B) |
| 04            | 30121        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Minimum demand current (W) |
| 04            | 30123        | Maximum power              | Maximum power              | Maximum power           | Maximum power              |
| 04            | 30125        | Minimum power              | Minimum power              | Minimum power           | Minimum power              |
| 04            | 30127        | Maximum demand power       | Maximum demand power       | Maximum demand power    | Maximum demand power       |
| 04            | 30129        | Minimum demand power       | Minimum demand power       | Minimum demand power    | Minimum demand power       |
| 04            | 30131        | Maximum reactive power     | Maximum reactive power     | Maximum reactive power  | Maximum reactive power     |
| 04            | 30133        | Minimum reactive power     | Minimum reactive power     | Minimum reactive power  | Minimum reactive power     |
| 04            | 30135        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Maximum apparent power     |
| 04            | 30137        | 0000H (Fixation)           | 0000H (Fixation)           | 0000H (Fixation)        | Minimum apparent power     |
| 04            | 30139        | Maximum power factor       | Maximum power factor       | Maximum power factor    | Maximum power factor       |
| 04            | 30141        | Minimum power factor       | Minimum power factor       | Minimum power factor    | Minimum power factor       |
| 04            | 30143        | Maximum frequency          | Maximum frequency          | Maximum frequency       | Maximum frequency          |
| 04            | 30145        | Minimum frequency          | Minimum frequency          | Minimum frequency       | Minimum frequency          |
| 04            | 30147        | Maximum current leakage    | Maximum current leakage    | Maximum current leakage | 0000H (Fixation)           |

Data-address list (3)

| Function code | Data address | Model                                              |                                                    |                                                 |                                                    |
|---------------|--------------|----------------------------------------------------|----------------------------------------------------|-------------------------------------------------|----------------------------------------------------|
|               |              | 3-phase 3-wire                                     | Single-phase 3-wire                                | Single-phase                                    | 3-phase 4-wire                                     |
| 04            | 30201        | Fundamental-wave effective value Voltage RY        | Fundamental-wave effective value Voltage RW        | Fundamental-wave effective value Voltage        | Fundamental-wave effective value Voltage RW        |
| 04            | 30203        | Fundamental-wave effective value Voltage YB        | Fundamental-wave effective value Voltage BW        | 0000H (Fixation)                                | Fundamental-wave effective value Voltage YW        |
| 04            | 30205        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Fundamental-wave effective value Voltage BW        |
| 04            | 30207        | Distortion factor Voltage RY                       | Distortion factor Voltage RW                       | Distortion factor Voltage                       | Distortion factor Voltage RW                       |
| 04            | 30209        | Distortion factor Voltage YB                       | Distortion factor Voltage BW                       | 0000H (Fixation)                                | Distortion factor Voltage YW                       |
| 04            | 30211        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Distortion factor Voltage BW                       |
| 04            | 30213        | Harmonic 5th conversion effective value Voltage RY | Harmonic 5th conversion effective value Voltage RW | Harmonic 5th conversion effective value Voltage | Harmonic 5th conversion effective value Voltage RW |
| 04            | 30215        | Harmonic 5th conversion effective value Voltage YB | Harmonic 5th conversion effective value Voltage BW | 0000H (Fixation)                                | Harmonic 5th conversion effective value Voltage YW |
| 04            | 30217        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 5th conversion effective value Voltage BW |
| 04            | 30219        | Harmonic 5th conversion content rate Voltage RY    | Harmonic 5th conversion content rate Voltage RW    | Harmonic 5th conversion content rate Voltage    | Harmonic 5th conversion content rate Voltage RW    |
| 04            | 30221        | Harmonic 5th conversion content rate Voltage YB    | Harmonic 5th conversion content rate Voltage BW    | 0000H (Fixation)                                | Harmonic 5th conversion content rate Voltage YW    |
| 04            | 30223        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 5th conversion content rate Voltage BW    |
| 04            | 30225        | Harmonic 3th effective value Voltage RY            | Harmonic 3th effective value Voltage RW            | Harmonic 3th effective value Voltage            | Harmonic 3th effective value Voltage RW            |
| 04            | 30227        | Harmonic 3th effective value Voltage YB            | Harmonic 3th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 3th effective value Voltage YW            |
| 04            | 30229        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 3th effective value Voltage BW            |
| 04            | 30231        | Harmonic 4th effective value Voltage RY            | Harmonic 4th effective value Voltage RW            | Harmonic 4th effective value Voltage            | Harmonic 4th effective value Voltage RW            |
| 04            | 30233        | Harmonic 4th effective value Voltage YB            | Harmonic 4th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 4th effective value Voltage YW            |
| 04            | 30235        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 4th effective value Voltage BW            |
| 04            | 30237        | Harmonic 5th effective value Voltage RY            | Harmonic 5th effective value Voltage RW            | Harmonic 5th effective value Voltage            | Harmonic 5th effective value Voltage RW            |
| 04            | 30239        | Harmonic 5th effective value Voltage YB            | Harmonic 5th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 5th effective value Voltage YW            |
| 04            | 30241        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 5th effective value Voltage BW            |
| 04            | 30243        | Harmonic 7th effective value Voltage RY            | Harmonic 7th effective value Voltage RW            | Harmonic 7th effective value Voltage            | Harmonic 7th effective value Voltage RW            |
| 04            | 30245        | Harmonic 7th effective value Voltage YB            | Harmonic 7th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 7th effective value Voltage YW            |
| 04            | 30247        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 7th effective value Voltage BW            |
| 04            | 30249        | Harmonic 9th effective value Voltage RY            | Harmonic 9th effective value Voltage RW            | Harmonic 9th effective value Voltage            | Harmonic 9th effective value Voltage RW            |
| 04            | 30251        | Harmonic 9th effective value Voltage YB            | Harmonic 9th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 9th effective value Voltage YW            |
| 04            | 30253        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 9th effective value Voltage BW            |
| 04            | 30255        | Harmonic 11th effective value Voltage RY           | Harmonic 11th effective value Voltage RW           | Harmonic 11th effective value Voltage           | Harmonic 11th effective value Voltage RW           |
| 04            | 30257        | Harmonic 11th effective value Voltage YB           | Harmonic 11th effective value Voltage BW           | 0000H (Fixation)                                | Harmonic 11th effective value Voltage YW           |

Data-address list (4)

| Function code | Data address | Model                                    |                                          |                                       |                                          |
|---------------|--------------|------------------------------------------|------------------------------------------|---------------------------------------|------------------------------------------|
|               |              | 3-phase 3-wire                           | Single-phase 3-wire                      | Single-phase                          | 3-phase 4-wire                           |
| 04            | 30259        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 11th effective value Voltage BW |
| 04            | 30261        | Harmonic 13th effective value Voltage RY | Harmonic 13th effective value Voltage RW | Harmonic 13th effective value Voltage | Harmonic 13th effective value Voltage RW |
| 04            | 30263        | Harmonic 13th effective value Voltage YB | Harmonic 13th effective value Voltage BW | 0000H (Fixation)                      | Harmonic 13th effective value Voltage YW |
| 04            | 30265        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 13th effective value Voltage BW |
| 04            | 30267        | Harmonic 15th effective value Voltage RY | Harmonic 15th effective value Voltage RW | Harmonic 15th effective value Voltage | Harmonic 15th effective value Voltage RW |
| 04            | 30269        | Harmonic 15th effective value Voltage YB | Harmonic 15th effective value Voltage BW | 0000H (Fixation)                      | Harmonic 15th effective value Voltage YW |
| 04            | 30271        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 15th effective value Voltage BW |
| 04            | 30273        | Harmonic 3th content rate Voltage RY     | Harmonic 3th content rate Voltage RW     | Harmonic 3th content rate Voltage     | Harmonic 3th content rate Voltage RW     |
| 04            | 30275        | Harmonic 3th content rate Voltage YB     | Harmonic 3th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 3th content rate Voltage YW     |
| 04            | 30277        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 3th content rate Voltage BW     |
| 04            | 30279        | Harmonic 4th content rate Voltage RY     | Harmonic 4th content rate Voltage RW     | Harmonic 4th content rate Voltage     | Harmonic 4th content rate Voltage RW     |
| 04            | 30281        | Harmonic 4th content rate Voltage YB     | Harmonic 4th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 4th content rate Voltage YW     |
| 04            | 30283        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 4th content rate Voltage BW     |
| 04            | 30285        | Harmonic 5th content rate Voltage RY     | Harmonic 5th content rate Voltage RW     | Harmonic 5th content rate Voltage     | Harmonic 5th content rate Voltage RW     |
| 04            | 30287        | Harmonic 5th content rate Voltage YB     | Harmonic 5th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 5th content rate Voltage YW     |
| 04            | 30289        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 5th content rate Voltage BW     |
| 04            | 30291        | Harmonic 7th content rate Voltage RY     | Harmonic 7th content rate Voltage RW     | Harmonic 7th content rate Voltage     | Harmonic 7th content rate Voltage RW     |
| 04            | 30293        | Harmonic 7th content rate Voltage YB     | Harmonic 7th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 7th content rate Voltage YW     |
| 04            | 30295        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 7th content rate Voltage BW     |
| 04            | 30297        | Harmonic 9th content rate Voltage RY     | Harmonic 9th content rate Voltage RW     | Harmonic 9th content rate Voltage     | Harmonic 9th content rate Voltage RW     |
| 04            | 30299        | Harmonic 9th content rate Voltage YB     | Harmonic 9th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 9th content rate Voltage YW     |
| 04            | 30301        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 9th content rate Voltage BW     |
| 04            | 30303        | Harmonic 11th content rate Voltage RY    | Harmonic 11th content rate Voltage RW    | Harmonic 11th content rate Voltage    | Harmonic 11th content rate Voltage RW    |
| 04            | 30305        | Harmonic 11th content rate Voltage YB    | Harmonic 11th content rate Voltage BW    | 0000H (Fixation)                      | Harmonic 11th content rate Voltage YW    |
| 04            | 30307        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 11th content rate Voltage BW    |
| 04            | 30309        | Harmonic 13th content rate Voltage RY    | Harmonic 13th content rate Voltage RW    | Harmonic 13th content rate Voltage    | Harmonic 13th content rate Voltage RW    |
| 04            | 30311        | Harmonic 13th content rate Voltage YB    | Harmonic 13th content rate Voltage BW    | 0000H (Fixation)                      | Harmonic 13th content rate Voltage YW    |
| 04            | 30313        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 13th content rate Voltage BW    |
| 04            | 30315        | Harmonic 15th content rate Voltage RY    | Harmonic 15th content rate Voltage RW    | Harmonic 15th content rate Voltage    | Harmonic 15th content rate Voltage RW    |
| 04            | 30317        | Harmonic 15th content rate Voltage YB    | Harmonic 15th content rate Voltage BW    | 0000H (Fixation)                      | Harmonic 15th content rate Voltage YW    |
| 04            | 30319        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 15th content rate Voltage BW    |

Data-address list (5)

| Function code | Data address | Model                                                         |                                                               |                                                            |                                                               |
|---------------|--------------|---------------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------|
|               |              | 3-phase 3-wire                                                | Single-phase 3-wire                                           | Single-phase                                               | 3-phase 4-wire                                                |
| 04            | 30401        | Maximum fundamental-wave effective value<br>Voltage RY        | Maximum fundamental-wave effective value<br>Voltage RW        | Maximum fundamental-wave effective value<br>Voltage        | Maximum fundamental-wave effective value<br>Voltage RW        |
| 04            | 30403        | Maximum fundamental-wave effective value<br>Voltage YB        | Maximum fundamental-wave effective value<br>Voltage BW        | 0000H (Fixation)                                           | Maximum fundamental-wave effective value<br>Voltage YW        |
| 04            | 30405        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Maximum fundamental-wave effective value<br>Voltage BW        |
| 04            | 30407        | Maximum distortion factor<br>Voltage RY                       | Maximum distortion factor<br>Voltage RW                       | Maximum distortion factor<br>Voltage                       | Maximum distortion factor<br>Voltage RW                       |
| 04            | 30409        | Maximum distortion factor<br>Voltage YB                       | Maximum distortion factor<br>Voltage BW                       | 0000H (Fixation)                                           | Maximum distortion factor<br>Voltage YW                       |
| 04            | 30411        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Maximum distortion factor<br>Voltage BW                       |
| 04            | 30413        | Harmonic 5th conversion effective value<br>Maximum voltage RY | Harmonic 5th conversion effective value<br>Maximum voltage RW | Harmonic 5th conversion effective value<br>Maximum voltage | Harmonic 5th conversion effective value<br>Maximum voltage RW |
| 04            | 30415        | Harmonic 5th conversion effective value<br>Maximum voltage YB | Harmonic 5th conversion effective value<br>Maximum voltage BW | 0000H (Fixation)                                           | Harmonic 5th conversion effective value<br>Maximum voltage YW |
| 04            | 30417        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 5th conversion effective value<br>Maximum voltage BW |
| 04            | 30419        | Harmonic 5th conversion content rate<br>Maximum voltage RY    | Harmonic 5th conversion content rate<br>Maximum voltage RW    | Harmonic 5th conversion content rate<br>Maximum voltage    | Harmonic 5th conversion content rate<br>Maximum voltage RW    |
| 04            | 30421        | Harmonic 5th conversion content rate<br>Maximum voltage YB    | Harmonic 5th conversion content rate<br>Maximum voltage BW    | 0000H (Fixation)                                           | Harmonic 5th conversion content rate<br>Maximum voltage YW    |
| 04            | 30423        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 5th conversion content rate<br>Maximum voltage BW    |
| 04            | 30425        | Harmonic 3th effective value<br>Maximum voltage RY            | Harmonic 3th effective value<br>Maximum voltage RW            | Harmonic 3th effective value<br>Maximum voltage            | Harmonic 3th effective value<br>Maximum voltage RW            |
| 04            | 30427        | Harmonic 3th effective value<br>Maximum voltage YB            | Harmonic 3th effective value<br>Maximum voltage BW            | 0000H (Fixation)                                           | Harmonic 3th effective value<br>Maximum voltage YW            |
| 04            | 30429        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 3th effective value<br>Maximum voltage BW            |
| 04            | 30431        | Harmonic 4th effective value<br>Maximum voltage RY            | Harmonic 4th effective value<br>Maximum voltage RW            | Harmonic 4th effective value<br>Maximum voltage            | Harmonic 4th effective value<br>Maximum voltage RW            |
| 04            | 30433        | Harmonic 4th effective value<br>Maximum voltage YB            | Harmonic 4th effective value<br>Maximum voltage BW            | 0000H (Fixation)                                           | Harmonic 4th effective value<br>Maximum voltage YW            |
| 04            | 30435        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 4th effective value<br>Maximum voltage BW            |
| 04            | 30437        | Harmonic 5th effective value<br>Maximum voltage RY            | Harmonic 5th effective value<br>Maximum voltage RW            | Harmonic 5th effective value<br>Maximum voltage            | Harmonic 5th effective value<br>Maximum voltage RW            |
| 04            | 30439        | Harmonic 5th effective value<br>Maximum voltage YB            | Harmonic 5th effective value<br>Maximum voltage BW            | 0000H (Fixation)                                           | Harmonic 5th effective value<br>Maximum voltage YW            |
| 04            | 30441        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 5th effective value<br>Maximum voltage BW            |
| 04            | 30443        | Harmonic 7th effective value<br>Maximum voltage RY            | Harmonic 7th effective value<br>Maximum voltage RW            | Harmonic 7th effective value<br>Maximum voltage            | Harmonic 7th effective value<br>Maximum voltage RW            |

Data-address list (6)

| Function code | Data address | Model                                               |                                                     |                                                  |                                                     |
|---------------|--------------|-----------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
|               |              | 3-phase 3-wire                                      | Single-phase 3-wire                                 | Single-phase                                     | 3-phase 4-wire                                      |
| 04            | 30445        | Harmonic 7th effective value<br>Maximum voltage YB  | Harmonic 7th effective value<br>Maximum voltage BW  | 0000H (Fixation)                                 | Harmonic 7th effective value<br>Maximum voltage YW  |
| 04            | 30447        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 7th effective value<br>Maximum voltage BW  |
| 04            | 30449        | Harmonic 9th effective value<br>Maximum voltage RY  | Harmonic 9th effective value<br>Maximum voltage RW  | Harmonic 9th effective value<br>Maximum voltage  | Harmonic 9th effective value<br>Maximum voltage RW  |
| 04            | 30451        | Harmonic 9th effective value<br>Maximum voltage YB  | Harmonic 9th effective value<br>Maximum voltage BW  | 0000H (Fixation)                                 | Harmonic 9th effective value<br>Maximum voltage YW  |
| 04            | 30453        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 9th effective value<br>Maximum voltage BW  |
| 04            | 30455        | Harmonic 11th effective value<br>Maximum voltage RY | Harmonic 11th effective value<br>Maximum voltage RW | Harmonic 11th effective value<br>Maximum voltage | Harmonic 11th effective value<br>Maximum voltage RW |
| 04            | 30457        | Harmonic 11th effective value<br>Maximum voltage YB | Harmonic 11th effective value<br>Maximum voltage BW | 0000H (Fixation)                                 | Harmonic 11th effective value<br>Maximum voltage YW |
| 04            | 30459        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 11th effective value<br>Maximum voltage BW |
| 04            | 30461        | Harmonic 13th effective value<br>Maximum voltage RY | Harmonic 13th effective value<br>Maximum voltage RW | Harmonic 13th effective value<br>Maximum voltage | Harmonic 13th effective value<br>Maximum voltage RW |
| 04            | 30463        | Harmonic 13th effective value<br>Maximum voltage YB | Harmonic 13th effective value<br>Maximum voltage BW | 0000H (Fixation)                                 | Harmonic 13th effective value<br>Maximum voltage YW |
| 04            | 30465        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 13th effective value<br>Maximum voltage BW |
| 04            | 30467        | Harmonic 15th effective value<br>Maximum voltage RY | Harmonic 15th effective value<br>Maximum voltage RW | Harmonic 15th effective value<br>Maximum voltage | Harmonic 15th effective value<br>Maximum voltage RW |
| 04            | 30469        | Harmonic 15th effective value<br>Maximum voltage YB | Harmonic 15th effective value<br>Maximum voltage BW | 0000H (Fixation)                                 | Harmonic 15th effective value<br>Maximum voltage YW |
| 04            | 30471        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 15th effective value<br>Maximum voltage BW |
| 04            | 30473        | Harmonic 3th content rate<br>Maximum voltage RY     | Harmonic 3th content rate<br>Maximum voltage RW     | Harmonic 3th content rate<br>Maximum voltage     | Harmonic 3th content rate<br>Maximum voltage RW     |
| 04            | 30475        | Harmonic 3th content rate<br>Maximum voltage YB     | Harmonic 3th content rate<br>Maximum voltage BW     | 0000H (Fixation)                                 | Harmonic 3th content rate<br>Maximum voltage YW     |
| 04            | 30477        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 3th content rate<br>Maximum voltage BW     |
| 04            | 30479        | Harmonic 4th content rate<br>Maximum voltage RY     | Harmonic 4th content rate<br>Maximum voltage RW     | Harmonic 4th content rate<br>Maximum voltage     | Harmonic 4th content rate<br>Maximum voltage RW     |
| 04            | 30481        | Harmonic 4th content rate<br>Maximum voltage YB     | Harmonic 4th content rate<br>Maximum voltage BW     | 0000H (Fixation)                                 | Harmonic 4th content rate<br>Maximum voltage YW     |
| 04            | 30483        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 4th content rate<br>Maximum voltage BW     |
| 04            | 30485        | Harmonic 5th content rate<br>Maximum voltage RY     | Harmonic 5th content rate<br>Maximum voltage RW     | Harmonic 5th content rate<br>Maximum voltage     | Harmonic 5th content rate<br>Maximum voltage RW     |
| 04            | 30487        | Harmonic 5th content rate<br>Maximum voltage YB     | Harmonic 5th content rate<br>Maximum voltage BW     | 0000H (Fixation)                                 | Harmonic 5th content rate<br>Maximum voltage YW     |
| 04            | 30489        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 5th content rate<br>Maximum voltage BW     |
| 04            | 30491        | Harmonic 7th content rate<br>Maximum voltage RY     | Harmonic 7th content rate<br>Maximum voltage RW     | Harmonic 7th content rate<br>Maximum voltage     | Harmonic 7th content rate<br>Maximum voltage RW     |

Data-address list (7)

| Function code | Data address | Model                                            |                                                  |                                               |                                                  |
|---------------|--------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------|--------------------------------------------------|
|               |              | 3-phase 3-wire                                   | Single-phase 3-wire                              | Single-phase                                  | 3-phase 4-wire                                   |
| 04            | 30493        | Harmonic 7th content rate<br>Maximum voltage YB  | Harmonic 7th content rate<br>Maximum voltage BW  | 0000H (Fixation)                              | Harmonic 7th content rate<br>Maximum voltage YW  |
| 04            | 30495        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 7th content rate<br>Maximum voltage BW  |
| 04            | 30497        | Harmonic 9th content rate<br>Maximum voltage RY  | Harmonic 9th content rate<br>Maximum voltage RW  | Harmonic 9th content rate<br>Maximum voltage  | Harmonic 9th content rate<br>Maximum voltage RW  |
| 04            | 30499        | Harmonic 9th content rate<br>Maximum voltage YB  | Harmonic 9th content rate<br>Maximum voltage BW  | 0000H (Fixation)                              | Harmonic 9th content rate<br>Maximum voltage YW  |
| 04            | 30501        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 9th content rate<br>Maximum voltage BW  |
| 04            | 30503        | Harmonic 11th content rate<br>Maximum voltage RY | Harmonic 11th content rate<br>Maximum voltage RW | Harmonic 11th content rate<br>Maximum voltage | Harmonic 11th content rate<br>Maximum voltage RW |
| 04            | 30505        | Harmonic 11th content rate<br>Maximum voltage YB | Harmonic 11th content rate<br>Maximum voltage BW | 0000H (Fixation)                              | Harmonic 11th content rate<br>Maximum voltage YW |
| 04            | 30507        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 11th content rate<br>Maximum voltage BW |
| 04            | 30509        | Harmonic 13th content rate<br>Maximum voltage RY | Harmonic 13th content rate<br>Maximum voltage RW | Harmonic 13th content rate<br>Maximum voltage | Harmonic 13th content rate<br>Maximum voltage RW |
| 04            | 30511        | Harmonic 13th content rate<br>Maximum voltage YB | Harmonic 13th content rate<br>Maximum voltage BW | 0000H (Fixation)                              | Harmonic 13th content rate<br>Maximum voltage YW |
| 04            | 30513        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 13th content rate<br>Maximum voltage BW |
| 04            | 30515        | Harmonic 15th content rate<br>Maximum voltage RY | Harmonic 15th content rate<br>Maximum voltage RW | Harmonic 15th content rate<br>Maximum voltage | Harmonic 15th content rate<br>Maximum voltage RW |
| 04            | 30517        | Harmonic 15th content rate<br>Maximum voltage YB | Harmonic 15th content rate<br>Maximum voltage BW | 0000H (Fixation)                              | Harmonic 15th content rate<br>Maximum voltage YW |
| 04            | 30519        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 15th content rate<br>Maximum voltage BW |

Data-address list (8)

| Function code | Data address | Model                                             |                                                   |                                                 |                                                   |
|---------------|--------------|---------------------------------------------------|---------------------------------------------------|-------------------------------------------------|---------------------------------------------------|
|               |              | 3-phase 3-wire                                    | Single-phase 3-wire                               | Single-phase                                    | 3-phase 4-wire<br>3-phase 3-wire (2VT-3CT)        |
| 04            | 30601        | Fundamental-wave effective value Current R        | Fundamental-wave effective value Current R        | Fundamental-wave effective value Current        | Fundamental-wave effective value Current R        |
| 04            | 30603        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Fundamental-wave effective value Current Y        |
| 04            | 30605        | Fundamental-wave effective value Current B        | Fundamental-wave effective value Current B        | 0000H (Fixation)                                | Fundamental-wave effective value Current B        |
| 04            | 30607        | Distortion factor Current R                       | Distortion factor Current R                       | Distortion factor Current                       | Distortion factor Current R                       |
| 04            | 30609        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Distortion factor Current Y                       |
| 04            | 30611        | Distortion factor Current B                       | Distortion factor Current B                       | 0000H (Fixation)                                | Distortion factor Current B                       |
| 04            | 30613        | Harmonic 5th conversion effective value Current R | Harmonic 5th conversion effective value Current R | Harmonic 5th conversion effective value Current | Harmonic 5th conversion effective value Current R |
| 04            | 30615        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 5th conversion effective value Current Y |
| 04            | 30617        | Harmonic 5th conversion effective value Current B | Harmonic 5th conversion effective value Current B | 0000H (Fixation)                                | Harmonic 5th conversion effective value Current B |
| 04            | 30619        | Harmonic 5th conversion content rate Current R    | Harmonic 5th conversion content rate Current R    | Harmonic 5th conversion content rate Current    | Harmonic 5th conversion content rate Current R    |
| 04            | 30621        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 5th conversion content rate Current Y    |
| 04            | 30623        | Harmonic 5th conversion content rate Current T    | Harmonic 5th conversion content rate Current T    | 0000H (Fixation)                                | Harmonic 5th conversion content rate Current B    |
| 04            | 30625        | Harmonic 3th effective value Current R            | Harmonic 3th effective value Current R            | Harmonic 3th effective value Current            | Harmonic 3th effective value Current R            |
| 04            | 30627        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 3th effective value Current Y            |
| 04            | 30629        | Harmonic 3th effective value Current B            | Harmonic 3th effective value Current B            | 0000H (Fixation)                                | Harmonic 3th effective value Current B            |
| 04            | 30631        | Harmonic 4th effective value Current R            | Harmonic 4th effective value Current R            | Harmonic 4th effective value Current            | Harmonic 4th effective value Current R            |
| 04            | 30633        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 4th effective value Current Y            |
| 04            | 30635        | Harmonic 4th effective value Current B            | Harmonic 4th effective value Current B            | 0000H (Fixation)                                | Harmonic 4th effective value Current B            |
| 04            | 30637        | Harmonic 5th effective value Current R            | Harmonic 5th effective value Current R            | Harmonic 5th effective value Current            | Harmonic 5th effective value Current R            |
| 04            | 30639        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 5th effective value Current Y            |
| 04            | 30641        | Harmonic 5th effective value Current B            | Harmonic 5th effective value Current B            | 0000H (Fixation)                                | Harmonic 5th effective value Current B            |
| 04            | 30643        | Harmonic 7th effective value Current R            | Harmonic 7th effective value Current R            | Harmonic 7th effective value Current            | Harmonic 7th effective value Current R            |
| 04            | 30645        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 7th effective value Current Y            |
| 04            | 30647        | Harmonic 7th effective value Current B            | Harmonic 7th effective value Current B            | 0000H (Fixation)                                | Harmonic 7th effective value Current B            |
| 04            | 30649        | Harmonic 9th effective value Current R            | Harmonic 9th effective value Current R            | Harmonic 9th effective value Current            | Harmonic 9th effective value Current R            |
| 04            | 30651        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 9th effective value Current Y            |
| 04            | 30653        | Harmonic 9th effective value Current B            | Harmonic 9th effective value Current B            | 0000H (Fixation)                                | Harmonic 9th effective value Current B            |
| 04            | 30655        | Harmonic 11th effective value Current R           | Harmonic 11th effective value Current R           | Harmonic 11th effective value Current           | Harmonic 11th effective value Current R           |
| 04            | 30657        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 11th effective value Current Y           |

Data-address list (9)

| Function code | Data address | Model                                   |                                         |                                       |                                            |
|---------------|--------------|-----------------------------------------|-----------------------------------------|---------------------------------------|--------------------------------------------|
|               |              | 3-phase 3-wire                          | Single-phase 3-wire                     | Single-phase                          | 3-phase 4-wire<br>3-phase 3-wire (2VT-3CT) |
| 04            | 30659        | Harmonic 11th effective value Current B | Harmonic 11th effective value Current B | 0000H (Fixation)                      | Harmonic 11th effective value Current B    |
| 04            | 30661        | Harmonic 13th effective value Current R | Harmonic 13th effective value Current R | Harmonic 13th effective value Current | Harmonic 13th effective value Current R    |
| 04            | 30663        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 13th effective value Current Y    |
| 04            | 30665        | Harmonic 13th effective value Current B | Harmonic 13th effective value Current B | 0000H (Fixation)                      | Harmonic 13th effective value Current B    |
| 04            | 30667        | Harmonic 15th effective value Current R | Harmonic 15th effective value Current R | Harmonic 15th effective value Current | Harmonic 15th effective value Current R    |
| 04            | 30669        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 15th effective value Current Y    |
| 04            | 30671        | Harmonic 15th effective value Current B | Harmonic 15th effective value Current B | 0000H (Fixation)                      | Harmonic 15th effective value Current B    |
| 04            | 30673        | Harmonic 3th content rate Current R     | Harmonic 3th content rate Current R     | Harmonic 3th content rate Current     | Harmonic 3th content rate Current R        |
| 04            | 30675        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 3th content rate Current Y        |
| 04            | 30677        | Harmonic 3th content rate Current B     | Harmonic 3th content rate Current B     | 0000H (Fixation)                      | Harmonic 3th content rate Current B        |
| 04            | 30679        | Harmonic 4th content rate Current R     | Harmonic 4th content rate Current R     | Harmonic 4th content rate Current     | Harmonic 4th content rate Current R        |
| 04            | 30681        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 4th content rate Current Y        |
| 04            | 30683        | Harmonic 4th content rate Current B     | Harmonic 4th content rate Current B     | 0000H (Fixation)                      | Harmonic 4th content rate Current B        |
| 04            | 30685        | Harmonic 5th content rate Current R     | Harmonic 5th content rate Current R     | Harmonic 5th content rate Current     | Harmonic 5th content rate Current R        |
| 04            | 30687        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 5th content rate Current Y        |
| 04            | 30689        | Harmonic 5th content rate Current B     | Harmonic 5th content rate Current B     | 0000H (Fixation)                      | Harmonic 5th content rate Current B        |
| 04            | 30691        | Harmonic 7th content rate Current R     | Harmonic 7th content rate Current R     | Harmonic 7th content rate Current     | Harmonic 7th content rate Current R        |
| 04            | 30693        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 7th content rate Current Y        |
| 04            | 30695        | Harmonic 7th content rate Current B     | Harmonic 7th content rate Current B     | 0000H (Fixation)                      | Harmonic 7th content rate Current B        |
| 04            | 30697        | Harmonic 9th content rate Current R     | Harmonic 9th content rate Current R     | Harmonic 9th content rate Current     | Harmonic 9th content rate Current R        |
| 04            | 30699        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 9th content rate Current Y        |
| 04            | 30701        | Harmonic 9th content rate Current B     | Harmonic 9th content rate Current B     | 0000H (Fixation)                      | Harmonic 9th content rate Current B        |
| 04            | 30703        | Harmonic 11th content rate Current R    | Harmonic 11th content rate Current R    | Harmonic 11th content rate Current    | Harmonic 11th content rate Current R       |
| 04            | 30705        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 11th content rate Current Y       |
| 04            | 30707        | Harmonic 11th content rate Current B    | Harmonic 11th content rate Current B    | 0000H (Fixation)                      | Harmonic 11th content rate Current B       |
| 04            | 30709        | Harmonic 13th content rate Current R    | Harmonic 13th content rate Current R    | Harmonic 13th content rate Current    | Harmonic 13th content rate Current R       |
| 04            | 30711        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 13th content rate Current Y       |
| 04            | 30713        | Harmonic 13th content rate Current B    | Harmonic 13th content rate Current B    | 0000H (Fixation)                      | Harmonic 13th content rate Current B       |
| 04            | 30715        | Harmonic 15th content rate Current R    | Harmonic 15th content rate Current R    | Harmonic 15th content rate Current    | Harmonic 15th content rate Current R       |
| 04            | 30717        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 15th content rate Current Y       |
| 04            | 30719        | Harmonic 15th content rate Current B    | Harmonic 15th content rate Current B    | 0000H (Fixation)                      | Harmonic 15th content rate Current B       |



Data-address list (10)

| Function code | Data address | Model                                                        |                                                              |                                                            |                                                              |
|---------------|--------------|--------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------|
|               |              | 3-phase 3-wire                                               | Single-phase 3-wire                                          | Single-phase                                               | 3-phase 4-wire<br>3-phase 3-wire (2VT-3CT)                   |
| 04            | 30801        | Maximum fundamental-wave effective value<br>Current R        | Maximum fundamental-wave effective value<br>Current R        | Maximum fundamental-wave effective value<br>Current        | Maximum fundamental-wave effective value<br>Current R        |
| 04            | 30803        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Maximum fundamental-wave effective value<br>Current Y        |
| 04            | 30805        | Maximum fundamental-wave effective value<br>Current B        | Maximum fundamental-wave effective value<br>Current B        | 0000H (Fixation)                                           | Maximum fundamental-wave effective value<br>Current B        |
| 04            | 30807        | Maximum distortion factor<br>Current R                       | Maximum distortion factor<br>Current R                       | Maximum distortion factor<br>Current                       | Maximum distortion factor<br>Current R                       |
| 04            | 30809        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Maximum distortion factor<br>Current Y                       |
| 04            | 30811        | Maximum distortion factor<br>Current B                       | Maximum distortion factor<br>Current B                       | 0000H (Fixation)                                           | Maximum distortion factor<br>Current B                       |
| 04            | 30813        | Harmonic 5th conversion effective value<br>Maximum current R | Harmonic 5th conversion effective value<br>Maximum current R | Harmonic 5th conversion effective value<br>Maximum current | Harmonic 5th conversion effective value<br>Maximum current R |
| 04            | 30815        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 5th conversion effective value<br>Maximum current Y |
| 04            | 30817        | Harmonic 5th conversion effective value<br>Maximum current B | Harmonic 5th conversion effective value<br>Maximum current B | 0000H (Fixation)                                           | Harmonic 5th conversion effective value<br>Maximum current B |
| 04            | 30819        | Harmonic 5th conversion content rate<br>Maximum current R    | Harmonic 5th conversion content rate<br>Maximum current R    | Harmonic 5th conversion content rate<br>Maximum current    | Harmonic 5th conversion content rate<br>Maximum current R    |
| 04            | 30821        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 5th conversion content rate<br>Maximum current Y    |
| 04            | 30823        | Harmonic 5th conversion content rate<br>Maximum current B    | Harmonic 5th conversion content rate<br>Maximum current B    | 0000H (Fixation)                                           | Harmonic 5th conversion content rate<br>Maximum current B    |
| 04            | 30825        | Harmonic 3th effective value<br>Maximum current R            | Harmonic 3th effective value<br>Maximum current R            | Harmonic 3th effective value<br>Maximum current            | Harmonic 3th effective value<br>Maximum current R            |
| 04            | 30827        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 3th effective value<br>Maximum current Y            |
| 04            | 30829        | Harmonic 3th effective value<br>Maximum current B            | Harmonic 3th effective value<br>Maximum current B            | 0000H (Fixation)                                           | Harmonic 3th effective value<br>Maximum current B            |
| 04            | 30831        | Harmonic 4th effective value<br>Maximum current R            | Harmonic 4th effective value<br>Maximum current R            | Harmonic 4th effective value<br>Maximum current            | Harmonic 4th effective value<br>Maximum current R            |
| 04            | 30833        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 4th effective value<br>Maximum current Y            |
| 04            | 30835        | Harmonic 4th effective value<br>Maximum current B            | Harmonic 4th effective value<br>Maximum current B            | 0000H (Fixation)                                           | Harmonic 4th effective value<br>Maximum current B            |
| 04            | 30837        | Harmonic 5th effective value<br>Maximum current R            | Harmonic 5th effective value<br>Maximum current R            | Harmonic 5th effective value<br>Maximum current            | Harmonic 5th effective value<br>Maximum current R            |
| 04            | 30839        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 5th effective value<br>Maximum current Y            |
| 04            | 30841        | Harmonic 5th effective value<br>Maximum current B            | Harmonic 5th effective value<br>Maximum current B            | 0000H (Fixation)                                           | Harmonic 5th effective value<br>Maximum current B            |

Data-address list (11)

| Function code | Data address | Model                                              |                                                    |                                                  |                                                    |
|---------------|--------------|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------|----------------------------------------------------|
|               |              | 3-phase 3-wire                                     | Single-phase 3-wire                                | Single-phase                                     | 3-phase 4-wire<br>3-phase 3-wire (2VT-3CT)         |
| 04            | 30843        | Harmonic 7th effective value<br>Maximum current R  | Harmonic 7th effective value<br>Maximum current R  | Harmonic 7th effective value<br>Maximum current  | Harmonic 7th effective value<br>Maximum current R  |
| 04            | 30845        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 7th effective value<br>Maximum current Y  |
| 04            | 30847        | Harmonic 7th effective value<br>Maximum current B  | Harmonic 7th effective value<br>Maximum current B  | 0000H (Fixation)                                 | Harmonic 7th effective value<br>Maximum current B  |
| 04            | 30849        | Harmonic 9th effective value<br>Maximum current R  | Harmonic 9th effective value<br>Maximum current R  | Harmonic 9th effective value<br>Maximum current  | Harmonic 9th effective value<br>Maximum current R  |
| 04            | 30851        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 9th effective value<br>Maximum current Y  |
| 04            | 30853        | Harmonic 9th effective value<br>Maximum current B  | Harmonic 9th effective value<br>Maximum current B  | 0000H (Fixation)                                 | Harmonic 9th effective value<br>Maximum current B  |
| 04            | 30855        | Harmonic 11th effective value<br>Maximum current R | Harmonic 11th effective value<br>Maximum current R | Harmonic 11th effective value<br>Maximum current | Harmonic 11th effective value<br>Maximum current R |
| 04            | 30857        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 11th effective value<br>Maximum current Y |
| 04            | 30859        | Harmonic 11th effective value<br>Maximum current B | Harmonic 11th effective value<br>Maximum current B | 0000H (Fixation)                                 | Harmonic 11th effective value<br>Maximum current B |
| 04            | 30861        | Harmonic 13th effective value<br>Maximum current R | Harmonic 13th effective value<br>Maximum current R | Harmonic 13th effective value<br>Maximum current | Harmonic 13th effective value<br>Maximum current R |
| 04            | 30863        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 13th effective value<br>Maximum current Y |
| 04            | 30865        | Harmonic 13th effective value<br>Maximum current B | Harmonic 13th effective value<br>Maximum current B | 0000H (Fixation)                                 | Harmonic 13th effective value<br>Maximum current B |
| 04            | 30867        | Harmonic 15th effective value<br>Maximum current R | Harmonic 15th effective value<br>Maximum current R | Harmonic 15th effective value<br>Maximum current | Harmonic 15th effective value<br>Maximum current R |
| 04            | 30869        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 15th effective value<br>Maximum current Y |
| 04            | 30871        | Harmonic 15th effective value<br>Maximum current B | Harmonic 15th effective value<br>Maximum current B | 0000H (Fixation)                                 | Harmonic 15th effective value<br>Maximum current B |
| 04            | 30873        | Harmonic 3th content rate<br>Maximum current R     | Harmonic 3th content rate<br>Maximum current R     | Harmonic 3th content rate<br>Maximum current     | Harmonic 3th content rate<br>Maximum current R     |
| 04            | 30875        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 3th content rate<br>Maximum current Y     |
| 04            | 30877        | Harmonic 3th content rate<br>Maximum current B     | Harmonic 3th content rate<br>Maximum current B     | 0000H (Fixation)                                 | Harmonic 3th content rate<br>Maximum current B     |
| 04            | 30879        | Harmonic 4th content rate<br>Maximum current R     | Harmonic 4th content rate<br>Maximum current R     | Harmonic 4th content rate<br>Maximum current     | Harmonic 4th content rate<br>Maximum current R     |
| 04            | 30881        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 4th content rate<br>Maximum current Y     |
| 04            | 30883        | Harmonic 4th content rate<br>Maximum current B     | Harmonic 4th content rate<br>Maximum current B     | 0000H (Fixation)                                 | Harmonic 4th content rate<br>Maximum current B     |
| 04            | 30885        | Harmonic 5th content rate<br>Maximum current R     | Harmonic 5th content rate<br>Maximum current R     | Harmonic 5th content rate<br>Maximum current     | Harmonic 5th content rate<br>Maximum current R     |
| 04            | 30887        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 5th content rate<br>Maximum current Y     |

Data-address list (12)

| Function code | Data address | Model                                           |                                                 |                                               |                                                 |
|---------------|--------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------------------|-------------------------------------------------|
|               |              | 3-phase 3-wire                                  | Single-phase 3-wire                             | Single-phase                                  | 3-phase 4-wire<br>3-phase 3-wire (2VT-3CT)      |
| 04            | 30889        | Harmonic 5th content rate<br>Maximum current B  | Harmonic 5th content rate<br>Maximum current B  | 0000H (Fixation)                              | Harmonic 5th content rate<br>Maximum current B  |
| 04            | 30891        | Harmonic 7th content rate<br>Maximum current R  | Harmonic 7th content rate<br>Maximum current R  | Harmonic 7th content rate<br>Maximum current  | Harmonic 7th content rate<br>Maximum current R  |
| 04            | 30893        | 0000H (Fixation)                                | 0000H (Fixation)                                | 0000H (Fixation)                              | Harmonic 7th content rate<br>Maximum current Y  |
| 04            | 30895        | Harmonic 7th content rate<br>Maximum current B  | Harmonic 7th content rate<br>Maximum current B  | 0000H (Fixation)                              | Harmonic 7th content rate<br>Maximum current B  |
| 04            | 30897        | Harmonic 9th content rate<br>Maximum current R  | Harmonic 9th content rate<br>Maximum current R  | Harmonic 9th content rate<br>Maximum current  | Harmonic 9th content rate<br>Maximum current R  |
| 04            | 30899        | 0000H (Fixation)                                | 0000H (Fixation)                                | 0000H (Fixation)                              | Harmonic 9th content rate<br>Maximum current Y  |
| 04            | 30901        | Harmonic 9th content rate<br>Maximum current B  | Harmonic 9th content rate<br>Maximum current B  | 0000H (Fixation)                              | Harmonic 9th content rate<br>Maximum current B  |
| 04            | 30903        | Harmonic 11th content rate<br>Maximum current R | Harmonic 11th content rate<br>Maximum current R | Harmonic 11th content rate<br>Maximum current | Harmonic 11th content rate<br>Maximum current R |
| 04            | 30905        | 0000H (Fixation)                                | 0000H (Fixation)                                | 0000H (Fixation)                              | Harmonic 11th content rate<br>Maximum current Y |
| 04            | 30907        | Harmonic 11th content rate<br>Maximum current B | Harmonic 11th content rate<br>Maximum current B | 0000H (Fixation)                              | Harmonic 11th content rate<br>Maximum current B |
| 04            | 30909        | Harmonic 13th content rate<br>Maximum current R | Harmonic 13th content rate<br>Maximum current R | Harmonic 13th content rate<br>Maximum current | Harmonic 13th content rate<br>Maximum current R |
| 04            | 30911        | 0000H (Fixation)                                | 0000H (Fixation)                                | 0000H (Fixation)                              | Harmonic 13th content rate<br>Maximum current Y |
| 04            | 30913        | Harmonic 13th content rate<br>Maximum current B | Harmonic 13th content rate<br>Maximum current B | 0000H (Fixation)                              | Harmonic 13th content rate<br>Maximum current B |
| 04            | 30915        | Harmonic 15th content rate<br>Maximum current R | Harmonic 15th content rate<br>Maximum current R | Harmonic 15th content rate<br>Maximum current | Harmonic 15th content rate<br>Maximum current R |
| 04            | 30917        | 0000H (Fixation)                                | 0000H (Fixation)                                | 0000H (Fixation)                              | Harmonic 15th content rate<br>Maximum current Y |
| 04            | 30919        | Harmonic 15th content rate<br>Maximum current B | Harmonic 15th content rate<br>Maximum current B | 0000H (Fixation)                              | Harmonic 15th content rate<br>Maximum current B |

## (2) Response

If measurement value requirements are performed normally, the following response will be returned from this product side.

Example) Data address : 30001, Number of data : 23 (3-phase 3-wire)

|                                                              |                                                        |                                                          |                                                            |                                   |                                          |                                  |                                  |    |                        |                        |                        |    |    |    |
|--------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------|-----------------------------------|------------------------------------------|----------------------------------|----------------------------------|----|------------------------|------------------------|------------------------|----|----|----|
| 1                                                            | 2                                                      | 3                                                        | 4                                                          | 5                                 | 6                                        | 7                                | 8                                | 9  | 10                     | 11                     | 12                     | 13 | 14 | 15 |
| Address                                                      | Function code                                          | Answer byte count                                        | 00                                                         | 00                                | 00                                       | 00                               | 00                               | 00 | RY line voltage<br>VRY | YB line voltage<br>VYB | BR line voltage<br>VBR |    |    |    |
| 16                                                           | 17                                                     | 18                                                       | 19                                                         | 20                                | 21                                       | 22                               | 23                               | 24 | 25                     | 26                     | 27                     | 28 | 29 |    |
| R phase Current<br>AR                                        | Y phase Current<br>AY                                  | B phase Current<br>AB                                    | 00                                                         | 00                                | R phase demand<br>current<br>DAR         | Y phase Demand<br>current<br>DAY | B phase Demand<br>current<br>DAB |    |                        |                        |                        |    |    |    |
| 30                                                           | 31                                                     | 32                                                       | 33                                                         | 34                                | 35                                       | 36                               | 37                               | 38 | 39                     | 40                     | 41                     | 42 | 43 |    |
| 00                                                           | 00                                                     | Active power<br>W                                        | Demand power<br>DW                                         | Watt-hour (Power receiving)<br>Wh | Watt-hour<br>(Power transmission)<br>-Wh |                                  |                                  |    |                        |                        |                        |    |    |    |
| 44                                                           | 45                                                     | 46                                                       | 47                                                         | 48                                | 49                                       | 50                               | 51                               | 52 | 53                     | 54                     | 55                     | 56 | 57 |    |
| Reactive power<br>var                                        | Reactive power<br>(Power receiving, LAG)<br>varh (LAG) | Reactive power<br>(Power receiving, LEAD)<br>varh (LEAD) | Reactive power<br>(Power transmission, LAG)<br>-varh (LAG) |                                   |                                          |                                  |                                  |    |                        |                        |                        |    |    |    |
| 58                                                           | 59                                                     | 60                                                       | 61                                                         | 62                                | 63                                       |                                  |                                  |    |                        |                        |                        |    |    |    |
| Reactive power<br>(Power transmission, LEAD)<br>-varh (LEAD) | CRC                                                    |                                                          |                                                            |                                   |                                          |                                  |                                  |    |                        |                        |                        |    |    |    |

## Transmission scaling

| Item                                                                                                                                                                                         |                            | Input                                         |                               |                          | Communication data (5)              | Intrinsic error |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------|-------------------------------|--------------------------|-------------------------------------|-----------------|
| Voltage,<br>Minimum voltage,<br>Maximum voltage                                                                                                                                              | 3 φ 3W<br>1 φ 2W<br>3 φ 4W | AC0~150V, AC0~300V, AC0~600V (Line)           |                               |                          | 0000H~2710H (0~10000)               | ±0.5%           |
|                                                                                                                                                                                              |                            | AC0~150/√3V, AC0~300/√3V, AC0~600/√3V (Phase) |                               |                          | 0000H~168EH (0~ 5774)               |                 |
|                                                                                                                                                                                              | 1 φ 3W (6)                 | AC0~300V (Line)                               |                               |                          | 0000H~2710H (0~10000)               |                 |
|                                                                                                                                                                                              |                            | AC0~150V (Phase)                              | Phase-voltage full-scale 150V | 0000H~2710H (0~10000)    |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | Phase-voltage full-scale 300V | 0000H~1388H (0~ 5000)    |                                     |                 |
| Current, Minimum current,<br>Maximum current,<br>Minimum demand current,<br>Maximum demand current,<br>Demand current                                                                        |                            | Rating 5A                                     | AC0~5A                        |                          | 0000H~2710H (0~10000)               | ±0.5%           |
|                                                                                                                                                                                              |                            | Rating 1A                                     | AC0~1A                        |                          |                                     |                 |
| Active power,<br>Minimum active power,<br>Maximum active power,<br>Maximum demand power,<br>Minimum demand power,<br>Demand power                                                            | 3 φ 3W<br>1 φ 3W<br>3 φ 4W | Rating 5A                                     | 110V                          | -1kW~0~+1kW              | D8F0H~0000H~2710H (-10000~0~+10000) | ±0.5%           |
|                                                                                                                                                                                              |                            |                                               | 220V                          | -2kW~0~+2kW              |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 440V                          | -4kW~0~+4kW              |                                     |                 |
|                                                                                                                                                                                              |                            | Rating 1A                                     | 110V                          | -200W~0~+200W            |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 220V                          | -400W~0~+400W            |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 440V                          | -800W~0~+800W            |                                     |                 |
|                                                                                                                                                                                              | 1 φ 2W                     | Rating 5A                                     | 110V                          | -500W~0~+500W            | EC78H~0000H~1388H (-5000~0~+5000)   | ±0.5%           |
|                                                                                                                                                                                              |                            |                                               | 220V                          | -1kW~0~+1kW              |                                     |                 |
|                                                                                                                                                                                              |                            | Rating 1A                                     | 110V                          | -100W~0~+100W            |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 220V                          | -200W~0~+200W            |                                     |                 |
| Reactive power,<br>Minimum reactive power,<br>Maximum reactive power                                                                                                                         | 3 φ 3W<br>1 φ 3W<br>3 φ 4W | Rating 5A                                     | 110V                          | LEAD 1kvar~0~LAG 1kvar   | D8F0H~0000H~2710H (-10000~0~+10000) | ±0.5%           |
|                                                                                                                                                                                              |                            |                                               | 220V                          | LEAD 2kvar~0~LAG 2kvar   |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 440V                          | LEAD 4kvar~0~LAG 4kvar   |                                     |                 |
|                                                                                                                                                                                              |                            | Rating 1A                                     | 110V                          | LEAD 200var~0~LAG 200var |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 220V                          | LEAD 400var~0~LAG 400var |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 440V                          | LEAD 800var~0~LAG 800var |                                     |                 |
|                                                                                                                                                                                              | 1 φ 2W                     | Rating 5A                                     | 110V                          | LEAD 500var~0~LAG 500var | EC78H~0000H~1388H (-5000~0~+5000)   | ±0.5%           |
|                                                                                                                                                                                              |                            |                                               | 220V                          | LEAD 1kvar~0~LAG 1kvar   |                                     |                 |
|                                                                                                                                                                                              |                            | Rating 1A                                     | 110V                          | LEAD 100var~0~LAG 100var |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 220V                          | LEAD 200var~0~LAG 200var |                                     |                 |
| Apparent power,<br>Minimum apparent power,<br>Maximum apparent power                                                                                                                         |                            | Rating 5A                                     | 110V                          | 0~1kVA                   | 0000H~2710H (0~10000)               | ±0.5%           |
|                                                                                                                                                                                              |                            |                                               | 220V                          | 0~2kVA                   |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 440V                          | 0~4kVA                   |                                     |                 |
|                                                                                                                                                                                              |                            | Rating 1A                                     | 110V                          | 0~200VA                  |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 220V                          | 0~400VA                  |                                     |                 |
|                                                                                                                                                                                              |                            |                                               | 440V                          | 0~800VA                  |                                     |                 |
| Power factor,<br>Minimum power factor,<br>Maximum power factor                                                                                                                               |                            | LEAD 0~1~LAG 0                                |                               |                          | 0000H~1388H~2710H (0~5000~10000)    | ±2.0%           |
|                                                                                                                                                                                              |                            | LEAD 0.5~1~LAG 0.5                            |                               |                          | 09C4H~1388H~1D4CH (2500~5000~7500)  |                 |
| Frequency,<br>Minimum frequency,<br>Maximum frequency                                                                                                                                        |                            | 45~55Hz                                       |                               |                          | 1194H~157CH (4500~5500)             | ±0.5%           |
|                                                                                                                                                                                              |                            | 55~65Hz                                       |                               |                          | 157CH~1964H (5500~6500)             |                 |
|                                                                                                                                                                                              |                            | 45~65Hz                                       |                               |                          | 1194H~1964H (4500~6500)             |                 |
| Current leakage,<br>Maximum current leakage                                                                                                                                                  |                            | AC0~AC0.8A                                    |                               |                          | 0000H~2710H (0~10000)               | ±10%            |
| Distortion factor,<br>Maximum distortion factor                                                                                                                                              |                            | Voltage                                       | 0.0%~20.0%                    |                          | 0000H~00C8H (0~200)                 | ±2.5%           |
|                                                                                                                                                                                              |                            | Current                                       | 0.0~100.0%                    |                          | 0000H~03E8H (0~1000)                | ±2.5%           |
| Harmonic content rate (Fundamental wave, nth),<br>Harmonic maximum content (Fundamental wave, nth),<br>Harmonic 5th conversion content rate,<br>Harmonic 5th conversion maximum content rate |                            | voltage                                       | 0.0%~20.0%                    |                          | 0000H~00C8H (0~200)                 | ±2.5%           |
|                                                                                                                                                                                              |                            | Current                                       | 0.0%~100.0%                   |                          | 0000H~03E8H (0~1000)                | ±2.5%           |

| Item                                                                                                                                                                                                                      | Input     |                                 |                                                                                | Communication data <sup>(5)</sup>                  | Intrinsic error |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------|-----------------|
| Harmonic effective value<br>(Fundamental wave, nth),<br>Harmonic maximum effective value<br>(Fundamental wave, nth),<br>Harmonic 5th conversion<br>effective value,<br>Harmonic 5th conversion maximum<br>effective value | Voltage   | 3 $\phi$ 3W<br>1 $\phi$ 2W      | AC0~150V, AC0~300V                                                             | 0000H~2710H (0~10000)                              | $\pm 1.5\%$     |
|                                                                                                                                                                                                                           |           | 3 $\phi$ 4W                     | AC0~150/ $\sqrt{3}$ V, AC0~300/ $\sqrt{3}$ V,<br>AC0~600/ $\sqrt{3}$ V (Phase) | 0000H~168EH (0~ 5774)                              |                 |
|                                                                                                                                                                                                                           |           | 1 $\phi$ 3W<br>( <sup>6</sup> ) | AC0~150V<br>(Phase)                                                            | Phase-voltage<br>full-scale 150V                   |                 |
|                                                                                                                                                                                                                           |           |                                 |                                                                                | Phase-voltage<br>full-scale 300V                   |                 |
|                                                                                                                                                                                                                           | Current   | Rating 5A                       | AC0~5A                                                                         | 0000H~2710H (0~10000)                              | $\pm 1.5\%$     |
|                                                                                                                                                                                                                           |           | Rating 1A                       | AC0~1A                                                                         |                                                    |                 |
| Watt-hour (Power receiving /<br>Power transmission)                                                                                                                                                                       | 0~99999.9 |                                 |                                                                                | 00000000H~000F423FH<br>(0~999999) ( <sup>7</sup> ) | $\pm 2.0\%$     |
| var-hour (Power receiving /<br>Power transmission, LAG/LEAD)                                                                                                                                                              | 0~99999.9 |                                 |                                                                                | 00000000H~000F423FH<br>(0~999999) ( <sup>7</sup> ) | $\pm 2.5\%$     |

Note(<sup>5</sup>) The range of communication data, Data at the case of low input.

- Current : 120% full-scale, Less than 0.5% of secondary rated current is "0000H" (0).
- Voltage : 101% full-scale, Less than 0.5% of secondary rated voltage is "0000H" (0).
- Active power, Reactive power : 120% full-scale, Less than 0.5% of secondary rated power and secondary reactive power is "0000H" (0).
- Power factor : Less than 20% of voltage range and less than 2% of current range are "1388H" (5000).
- Frequency :  $\pm 1\%$  of measuring range. 45~55Hz : 44.9~55.1Hz "118AH~1586H" (4490~5510)  
55~65Hz : 54.9~65.1Hz "1572H~196EH" (5490~6510)  
45~65Hz : 44.8~65.2Hz "1180H~1978H" (4480~6520)  
Less than 20% of voltage range is "0000H".
- Active power, Reactive power : Minus data expresses with two's complement.  
(-10000~0~10000 : D8F0H~0000H~2710H)
- Current leakage : 120% (12000) full-scale, Out of range : "FFFFH" (-1)

Note(<sup>6</sup>) The default setting of phase-voltage full-scale setting is 300V.

Note(<sup>7</sup>) It is set to kWh (kvarh) by hanging multiplying factor data on watt-hour data.

Example) Watt-hour(kWh) = Watt-hour date  $\times$  Multiplying factor data = 123.4 $\times$ 100 = 12340kWh

## 6.8 Maximum, minimum reset request

It is used for performing the maximum minimum reset to this product. It will be broadcast if 00H are designated as an address. A function code designates 06H.

### (1) The maximum minimum reset request (Query)

In case it performs the maximum minimum reset request, it is necessary to transmit the write-in data containing a data address and the factor to reset. If a data address is transmitted, please subtract 40001 from the address of a data-address list.

|         |               |              |   |            |   |       |   |
|---------|---------------|--------------|---|------------|---|-------|---|
| 1       | 2             | 3            | 4 | 5          | 6 | 7     | 8 |
| Address | Function code | Data address |   | Write data |   | CRC   |   |
| 01H     | 06H           | 012CH        |   | 001FH      |   | 0837H |   |

#### Data address list

| Function code | Data address | Model                  |                     |                     |                |
|---------------|--------------|------------------------|---------------------|---------------------|----------------|
|               |              | 3-phase 3-wire         | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire |
| 06H           | 40301        | Maximum, minimum reset |                     |                     |                |

### ● Maximum minimum reset, Bit allocation of write data <sup>(8)</sup>

|     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|
| B15 | B14 | B13 | B12 | B11 | B10 | B9 | B8 | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 |
| —   | —   | —   | —   | ⑫   | ⑪   | ⑩  | ⑨  | ⑧  | ⑦  | ⑥  | ⑤  | ④  | ③  | ②  | ①  |

| No. | Contents of output                               | No. | Contents of output                                |
|-----|--------------------------------------------------|-----|---------------------------------------------------|
| ①   | Voltage (Maximum, Minimum)                       | ⑦   | Frequency (Maximum, Minimum)                      |
| ②   | Current (Maximum, Minimum)                       | ⑧   | Current leakage (Maximum) <sup>(10)</sup>         |
| ③   | Active power (Maximum, Minimum)                  | ⑨   | Demand current (Maximum, Minimum)                 |
| ④   | Reactive power (Maximum, Minimum)                | ⑩   | Demand power (Maximum, Minimum)                   |
| ⑤   | Apparent power (Maximum, Minimum) <sup>(9)</sup> | ⑪   | Harmonic data (Maximum) (Voltage) <sup>(11)</sup> |
| ⑥   | Power factor (Maximum, Minimum)                  | ⑫   | Harmonic data (Maximum) (Current) <sup>(11)</sup> |

Note<sup>(8)</sup> Except an applicable bit and the measurement factor that doesn't exist by the model, data is not reset as for ON (1).

Note<sup>(9)</sup> Only with 3-phase 4-wire specification.

Note<sup>(10)</sup> Only with leakage measurement option

Note<sup>(11)</sup> Harmonic data : Fundamental-wave effective value, Distortion factor, Harmonic nth effective value, Harmonic nth content rate, Harmonic 5th conversion effective value, Harmonic 5th conversion content rate

### (2) Response

If maximum minimum reset request is performed normally, the following response will be returned from this product side. In case broadcast (address 00H) is designated, a response does not occur.

|         |               |              |   |             |   |     |   |
|---------|---------------|--------------|---|-------------|---|-----|---|
| 1       | 2             | 3            | 4 | 5           | 6 | 7   | 8 |
| Address | Function code | Data address |   | Change data |   | CRC |   |

The same data as the write data of the maximum and the minimum reset factor is returned to change data.

## 6.9 Loopback test

A loopback test is the function that tests communication of a master and a slave (SQLC). Arbitrary data is answered as it is. There is no broadcast. A function code designates 08H.

### (1) The request of loopback (Query)

In case it performs a loopback test, it is necessary to transmit the data used for a diagnostic code and diagnosis. A diagnostic code should designate 0000H. A diagnostic data designates the selected value to 0000H~FFFFH.

| 1       | 2             | 3               | 4 | 5               | 6 | 7     | 8 |
|---------|---------------|-----------------|---|-----------------|---|-------|---|
| Address | Function code | Diagnostic code |   | Diagnostic data |   | CRC   |   |
| 01H     | 08H           | 0000H           |   | 04D2H           |   | 6296H |   |

### (2) Response

If loopback request is performed normally, the following response will be returned from this product side.

| 1       | 2             | 3               | 4 | 5               | 6 | 7   | 8 |
|---------|---------------|-----------------|---|-----------------|---|-----|---|
| Address | Function code | Diagnostic code |   | Diagnostic data |   | CRC |   |

The same data as the master transmitted by (1) is returned to diagnostic code and diagnostic data.



## 7. Modbus protocol RTU mode ver.B

## 7.1 Function code

The next function code is supported with this product.

| Code | Name                      | Data address | Contents                                                                                  | Modbus original function            |
|------|---------------------------|--------------|-------------------------------------------------------------------------------------------|-------------------------------------|
| 03   | Measurement range request | 40001~       | VT ratio, CT ratio and the readout of multiplying factor.                                 | Holding register readout            |
|      | Setting value request     | 40101~       | The readout of setting value (measurement, alarm).                                        |                                     |
|      | Status request            | 40201~       | The status readout of alarm output.                                                       |                                     |
|      | Model information request | 40501~       | The readout of model information (type code, phase wire, rated voltage).                  |                                     |
| 04   | Measurement value request | 30001~       | The readout of general measurement value (instant value / maximum value / minimum value). | Input-register readout              |
|      |                           | 30101~       | The readout of harmonic measurement value (voltage).                                      |                                     |
|      |                           | 30201~       | The readout of harmonic measurement value (voltage, maximum value).                       |                                     |
|      |                           | 30301~       | The readout of harmonic measurement value (current).                                      |                                     |
|      |                           | 30401~       | The readout of harmonic measurement value (current, maximum value).                       |                                     |
| 06   | Maximum, Minimum reset    | 40301~       | Reset of the maximum value and the minimum value is performed.                            | Writing of simplex holding register |
| 08   | Loopback test             | —            | The communication test of master and slave is performed.                                  | Diagnosis                           |

## 7.2 Abnormal response

In case the message transmitted from the master is judged to be abnormal, this product does the next abnormal answer.

## (1) In case it becomes a no answer

- ① : In case a message transmission error occurs. (Overrun, Framing, Parity error, CRC)
- ② : In case the data interval of a message exceeds a regulation value (1.5 characters).
- ③ : In case the message frame exceeding 8 bytes is received.

## (2) In case as answered in an error code.

In the error that does not correspond to (1), the following abnormal response is returned.

At this case, the code that applied 80H to the code of a demand is returned to a function code.

And, the generated error code is returned as data.

## Error code list

| Error code | Contents                                                                                 | 1 byte  | 1 byte               | 1 byte     | 2 byte |
|------------|------------------------------------------------------------------------------------------|---------|----------------------|------------|--------|
| 01H        | The function code besides regulation is received.                                        | Address | Function code (+80H) | Error code | CRC    |
| 02H        | A data address is out of range.                                                          |         |                      |            |        |
| 03H        | The data more than the number of answer data are required. Setting out of setting range. |         |                      |            |        |
|            |                                                                                          | 01H     | 84H                  | 02H        | C2C1H  |

### 7.3 Measurement range request

It is used for reading measurement-range information, such as VT and CT ratio, in this product.  
There is no broadcast. A function code designates 03H.

#### (1) The request of data (Query)

In case it performs a range request, it is necessary to designate the start address of data to acquire.  
When a data address is transmitted, please subtract 40001 from the address of a data-address list.  
The number of data should designate the tale of the data to request.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 03H           | 0000H        |   | 0003H          |   | 05CBH |   |

#### Data address list

| Function code | Data address | Model              |                     |                     |                |
|---------------|--------------|--------------------|---------------------|---------------------|----------------|
|               |              | 3-phase 3-wire     | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire |
| 03H           | 40001        | VT ratio           |                     |                     |                |
|               | 40002        | CT ratio           |                     |                     |                |
|               | 40003        | Multiplying factor |                     |                     |                |

#### (2) Response

If a range request is performed normally, the following response will be returned from this product side.

Example) Data address : 40001, Number of data : 3.

| 1       | 2             | 3                 | 4        | 5 | 6        | 7 | 8                  | 9 | 10  | 11 |
|---------|---------------|-------------------|----------|---|----------|---|--------------------|---|-----|----|
| Address | Function code | Answer byte count | VT ratio |   | CT ratio |   | Multiplying factor |   | CRC |    |

● VT ratio, CT ratio

VT ratio data = Primary rated value  $\div$  110V

CT ratio data = Primary rated value  $\div$  5A  $\times$  10 <sup>(12)</sup>

| Primary rated<br>(V)  | Setting value<br>data | Primary rated<br>(A) | Setting value<br>data | Primary rated<br>(A) | Setting value<br>data |
|-----------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|
| 110                   | 0001H (1)             | 5                    | 000AH (10)            | 1500                 | 0BB8H (3000)          |
| 220                   | 0002H (2)             | 6                    | 000CH (12)            | 1600                 | 0C80H (3200)          |
| 380 <sup>(13)</sup>   | 0003H (3)             | 7.5                  | 000FH (15)            | 1800                 | 0E10H (3600)          |
| 440                   | 0004H (4)             | 8                    | 0010H (16)            | 2000                 | 0FA0H (4000)          |
| 460 <sup>(13)</sup>   | 0005H (5)             | 10                   | 0014H (20)            | 2500                 | 1388H (5000)          |
| 480 <sup>(13)</sup>   | 0006H (6)             | 12                   | 0018H (24)            | 3000                 | 1770H (6000)          |
| 880                   | 0008H (8)             | 15                   | 001EH (30)            | 4000                 | 1F40H (8000)          |
| 1100                  | 000AH (10)            | 20                   | 0028H (40)            | 5000                 | 2710H (10000)         |
| 1650                  | 000FH (15)            | 25                   | 0032H (50)            | 6000                 | 2EE0H (12000)         |
| 2200                  | 0014H (20)            | 30                   | 003CH (60)            | 7500                 | 3A98H (15000)         |
| 3300                  | 001EH (30)            | 40                   | 0050H (80)            | 8000                 | 3E80H (16000)         |
| 6600                  | 003CH (60)            | 50                   | 0064H (100)           | 9000                 | 4650H (18000)         |
| 11k                   | 0064H (100)           | 60                   | 0078H (120)           | 10000                | 4E20H (20000)         |
| 13.2k                 | 0078H (120)           | 75                   | 0096H (150)           | 12000                | 5DC0H (24000)         |
| 13.8k <sup>(13)</sup> | 007DH (125)           | 80                   | 00A0H (160)           | 15000                | 7530H (30000)         |
| 16.5k                 | 0096H (150)           | 100                  | 00C8H (200)           | 20000                | 9C40H (40000)         |
| 18.4k <sup>(13)</sup> | 00A7H (167)           | 120                  | 00F0H (240)           | 30000                | EA60H (60000)         |
| 22k                   | 00C8H (200)           | 150                  | 012CH (300)           |                      |                       |
| 33k                   | 012CH (300)           | 200                  | 0190H (400)           |                      |                       |
| 66k                   | 0258H (600)           | 250                  | 01F4H (500)           |                      |                       |
| 77k                   | 02BCH (700)           | 300                  | 0258H (600)           |                      |                       |
| 110k                  | 03E8H (1000)          | 400                  | 0320H (800)           |                      |                       |
| 132k                  | 04B0H (1200)          | 500                  | 03E8H (1000)          |                      |                       |
| 154k                  | 0578H (1400)          | 600                  | 04B0H (1200)          |                      |                       |
| 187k                  | 06A4H (1700)          | 750                  | 05DCH (1500)          |                      |                       |
| 220k                  | 07D0H (2000)          | 800                  | 0640H (1600)          |                      |                       |
| 275k                  | 09C4H (2500)          | 900                  | 0708H (1800)          |                      |                       |
| 380k <sup>(13)</sup>  | 0D7FH (3455)          | 1000                 | 07D0H (2000)          |                      |                       |
| 550k                  | 1388H (5000)          | 1200                 | 0960H (2400)          |                      |                       |

The number of ( ) expresses decimal number data.

Note<sup>(12)</sup> In case of 1A input specification, they output it as CT ratio data = Primary rated value  $\div$  5A  $\times$  10.

Note<sup>(13)</sup> Because broken numbers will occur if it divides by 110V, it becomes intrinsic set-value data.

● Multiplying factor

| Multiplying factor | Communication data |
|--------------------|--------------------|
| $\times 0.01$      | 0005H (5)          |
| $\times 0.1$       | 0006H (6)          |
| $\times 1$         | 0000H (0)          |
| $\times 10$        | 0001H (1)          |
| $\times 100$       | 0002H (2)          |
| $\times 1000$      | 0003H (3)          |
| $\times 10000$     | 0004H (4)          |

The number of ( ) expresses decimal number data.

## 7.4 Setting value request

It is used for reading set value (measurement, alarm) from this product.  
There is no broadcast. A function code designates 03H.

### (1) The request of data (Query)

In case it performs setting value requirements, it is necessary to designate the start address of data to acquire.  
When a data address is transmitted, please subtract 40001 from the address of a data-address list.  
The number of data should designate the tale of the data to request.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 03H           | 0064H        |   | 000EH          |   | 85D1H |   |

### Data address list

| Function code | Data address | Model                                                      |                     |                     |                  |
|---------------|--------------|------------------------------------------------------------|---------------------|---------------------|------------------|
|               |              | 3-phase 3-wire                                             | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire   |
| 03H           | 40101        | Alarm output 1 Output factor                               |                     |                     |                  |
|               | 40102        | Alarm output 2 Output factor                               |                     |                     |                  |
|               | 40103        | Alarm output Reset method                                  |                     |                     |                  |
|               | 40104        | Alarm output 1 Contact delay time                          |                     |                     |                  |
|               | 40105        | Alarm output 2 Contact delay time                          |                     |                     |                  |
|               | 40106        | Demand current Upper limit value                           |                     |                     |                  |
|               | 40107        | Demand current Time interval                               |                     |                     |                  |
|               | 40108        | Demand power Upper limit value                             |                     |                     |                  |
|               | 40109        | Demand power Time interval                                 |                     |                     |                  |
|               | 40110        | Demand power Operation method                              |                     |                     |                  |
|               | 40111        | Demand power Power factor operation method                 |                     |                     |                  |
|               | 40112        | Harmonic distortion factor upper limit (current)           |                     |                     |                  |
|               | 40113        | Harmonic 5th conversion content rate upper limit (current) |                     |                     |                  |
|               | 40114        | Harmonic nth content rate factor (current)                 |                     |                     |                  |
|               | 40115        | Harmonic nth content rate upper limit value (current)      |                     |                     |                  |
|               | 40116        | Harmonic distortion factor upper limit (voltage)           |                     |                     |                  |
|               | 40117        | Harmonic 5th conversion content rate upper limit (voltage) |                     |                     |                  |
|               | 40118        | Harmonic nth content rate factor (voltage)                 |                     |                     |                  |
|               | 40119        | Harmonic nth content rate upper limit value (voltage)      |                     |                     |                  |
|               | 40120        | Harmonic 5th conversion detection characteristics          |                     |                     |                  |
|               | 40121        | Harmonic average value time interval                       |                     |                     |                  |
|               | 40122        | Instantaneous detection Voltage upper limit value          |                     |                     |                  |
|               | 40123        | Instantaneous detection Voltage lower limit value          |                     |                     |                  |
|               | 40124        | Leakage detection Rated sensitivity current value          |                     |                     | 0000H (Fixation) |
|               | 40125        | Leakage detection Factor switching                         |                     |                     | 0000H (Fixation) |
|               | 40126        | Leakage detection Circuit switching                        |                     |                     | 0000H (Fixation) |
|               | 40127        | Leakage detection Use ZCT selection                        |                     |                     | 0000H (Fixation) |
|               | 40128        | Tidal current measurement                                  |                     |                     |                  |



## (5) Demand current time interval

Demand current time interval = Communication data

| Time interval | Communication data | Time interval | Communication data | Time interval | Communication data |
|---------------|--------------------|---------------|--------------------|---------------|--------------------|
| 0 second      | 0000H (0)          | 1 minute      | 003CH (60)         | 8 minutes     | 01E0H (480)        |
| 5 seconds     | 0005H (5)          | 2 minutes     | 0078H (120)        | 9 minutes     | 021CH (540)        |
| 10 seconds    | 000AH (10)         | 3 minutes     | 00B4H (180)        | 10 minutes    | 0258H (600)        |
| 20 seconds    | 0014H (20)         | 4 minutes     | 00F0H (240)        | 15 minutes    | 0384H (900)        |
| 30 seconds    | 001EH (30)         | 5 minutes     | 012CH (300)        | 20 minutes    | 04B0H (1200)       |
| 40 seconds    | 0028H (40)         | 6 minutes     | 0168H (360)        | 25 minutes    | 05DCH (1500)       |
| 50 seconds    | 0032H (50)         | 7 minutes     | 01A4H (420)        | 30 minutes    | 0708H (1800)       |

## (6) Demand power upper limit value

Demand power upper limit value = Communication data

| Upper limit value     | Communication data                     |
|-----------------------|----------------------------------------|
| 5~100% (1% step), OFF | 0005H~0064H (5~100), OFF : 0065H (101) |

## (7) Demand power time interval

Demand power time interval = Communication data

| Time interval | Communication data | Time interval | Communication data | Time interval | Communication data |
|---------------|--------------------|---------------|--------------------|---------------|--------------------|
| 0 second      | 0000H (0)          | 1 minute      | 003CH (60)         | 8 minutes     | 01E0H (480)        |
| 5 seconds     | 0005H (5)          | 2 minutes     | 0078H (120)        | 9 minutes     | 021CH (540)        |
| 10 seconds    | 000AH (10)         | 3 minutes     | 00B4H (180)        | 10 minutes    | 0258H (600)        |
| 20 seconds    | 0014H (20)         | 4 minutes     | 00F0H (240)        | 15 minutes    | 0384H (900)        |
| 30 seconds    | 001EH (30)         | 5 minutes     | 012CH (300)        | 20 minutes    | 04B0H (1200)       |
| 40 seconds    | 0028H (40)         | 6 minutes     | 0168H (360)        | 25 minutes    | 05DCH (1500)       |
| 50 seconds    | 0032H (50)         | 7 minutes     | 01A4H (420)        | 30 minutes    | 0708H (1800)       |

## (8) Demand power operation method

| Operation method                                     | Communication data |
|------------------------------------------------------|--------------------|
| The operation method tailored to the bimetallic type | 0001H              |
| The averaging operator in a demand time interval     | 0002H              |

## (9) Demand power, power factor operation method

| Power factor operation method                    | Communication data |
|--------------------------------------------------|--------------------|
| Instantaneous measurement                        | 0001H              |
| The averaging operator in a demand time interval | 0002H              |

## (10) Harmonic distortion factor upper limit (Current)

Distortion factor upper limit (current) = Communication data ÷ 10

| Upper limit value         | Communication data                        |
|---------------------------|-------------------------------------------|
| 5.0~100.0% (1% step), OFF | 0032H~03E8H (50~1000), OFF : 03F2H (1010) |

## (11) Harmonic 5th conversion content rate upper limit value (Current)

5th conversion content upper limit value (Current) = Communication data ÷ 10

| Upper limit value         | Communication data                        |
|---------------------------|-------------------------------------------|
| 5.0~100.0% (1% step), OFF | 0032H~03E8H (50~1000), OFF : 03F2H (1010) |

## (12) Harmonic nth content rate factor (current)

| Factor | Communication data |
|--------|--------------------|
| 3th    | 0003H (3)          |
| 4th    | 0004H (4)          |
| 5th    | 0005H (5)          |
| 7th    | 0007H (7)          |
| 9th    | 0009H (9)          |
| 11th   | 000BH (11)         |
| 13th   | 000DH (13)         |
| 15th   | 000FH (15)         |

## (13) Harmonic nth content rate upper limit value (Current)

nth content rate upper limit value(current) = Communication data  $\div$  10

| Upper limit value         | Communication data                      |
|---------------------------|-----------------------------------------|
| 5.0~100.0% (1% step), OFF | 0032H~03E8H(50~1000), OFF : 03F2H(1010) |

## (14) Harmonic distortion factor upper limit value (Voltage)

Distortion factor upper limit value(voltage) = Communication data  $\div$  10

| Upper limit value          | Communication data                    |
|----------------------------|---------------------------------------|
| 1.0~20.0% (0.1% step), OFF | 000AH~00C8H(10~200), OFF : 00C9H(201) |

## (15) Harmonic 5th conversion content rate upper limit value (Voltage)

5th conversion content upper limit value (Voltage) = Communication data  $\div$  10

| Upper limit value          | Communication data                    |
|----------------------------|---------------------------------------|
| 1.0~20.0% (0.1% step), OFF | 000AH~00C8H(10~200), OFF : 00C9H(201) |

## (16) Harmonic nth content rate factor (Voltage)

| Factor | Communication data |
|--------|--------------------|
| 3th    | 0003H (3)          |
| 4th    | 0004H (4)          |
| 5th    | 0005H (5)          |
| 7th    | 0007H (7)          |
| 9th    | 0009H (9)          |
| 11th   | 000BH (11)         |
| 13th   | 000DH (13)         |
| 15th   | 000FH (15)         |

## (17) Harmonic nth content rate upper limit value (Voltage)

nth content rate upper limit value (Voltage) = Communication data  $\div$  10

| Upper limit value          | Communication data                    |
|----------------------------|---------------------------------------|
| 1.0~20.0% (0.1% step), OFF | 000AH~00C8H(10~200), OFF : 00C9H(201) |

## (18) Harmonic 5th conversion detection characteristics

| Detection characteristics | Communication data |
|---------------------------|--------------------|
| Average-value mode        | 0001H              |
| Inverse-time-delay mode   | 0002H              |

## (19) Harmonic average value time interval

Average value time interval = Communication data

| Time interval | Communication data |
|---------------|--------------------|
| 0 minute      | 0000H (0)          |
| 1 minutes     | 0001H (1)          |
| 2 minutes     | 0002H (2)          |
| 5 minutes     | 0005H (5)          |
| 10 minutes    | 000AH (10)         |
| 15 minutes    | 000FH (15)         |
| 30 minutes    | 001EH (30)         |

## (20) Instantaneous detection voltage upper limit value

Voltage upper limit value = Communication data

| upper limit value      | Communication data                      |
|------------------------|-----------------------------------------|
| 30~150% (1% step), OFF | 001EH~0096H (30~150), OFF : 0097H (151) |

## (21) Voltage lower limit value

Voltage lower limit value = Communication data

| Lower limit value      | Communication data                     |
|------------------------|----------------------------------------|
| 30~150% (1% step), OFF | 001EH~0096H (30~150), OFF : 001DH (29) |

## (22) Leakage detection rated sensitivity current value

Rated sensitivity current value = Communication data × 100

| Rated sensitivity current value | Communication data |
|---------------------------------|--------------------|
| 0.03A                           | 0003H (3)          |
| 0.05A                           | 0005H (5)          |
| 0.1A                            | 000AH (10)         |
| 0.2A                            | 0014H (20)         |
| 0.4A                            | 0028H (40)         |
| 0.8A                            | 0050H (80)         |

3-phase 4-wire specification and 3-phase 3-wire 2VT3CT specification. The product without leakage measurement returns "0000H".

## (23) Leakage detection factor switching

| Factor          | Communication data |
|-----------------|--------------------|
| I <sub>o</sub>  | 0001H              |
| I <sub>gr</sub> | 0002H              |

3-phase 4-wire specification and 3-phase 3-wire 2VT3CT specification. The product without leakage measurement returns "0000H".

## (24) Leakage detection circuit switching

| Circuit                                    | Communication data |
|--------------------------------------------|--------------------|
| 1-phase earthing                           | 0001H              |
| 1-phase earthing (Negative phase sequence) | 0002H              |
| Non-earthing                               | 0003H              |

3-phase 4-wire specification and 3-phase 3-wire 2VT3CT specification. The product without leakage measurement returns "0000H".

## (25) Leakage detection use ZCT

| Use ZCT                                 | Communication data |
|-----------------------------------------|--------------------|
| TYPE 0 (Recommendation products)        | 0001H              |
| TYPE 1 (Except recommendation products) | 0002H              |

3-phase 4-wire specification and those without leakage measurement return "0000H".

## (26) Tidal current measurement

| Measurement               | Communication data |
|---------------------------|--------------------|
| General measurement       | 0001H              |
| Tidal current measurement | 0002H              |



## 7.5 Status request

It is used for reading the status of this product. There is no broadcast. A function code designates 03H.

### (1) The request of data (Query)

In case it performs a status request, it is necessary to designate the data address of data to acquire. When a data address is transmitted, please subtract 40001 from the address of a data-address list. The number of data should designate the tale of the data to request.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 03H           | 00C8H        |   | 0001H          |   | 05F4H |   |

Data address list

| Function code | Data address | Model                  |                     |                     |                |
|---------------|--------------|------------------------|---------------------|---------------------|----------------|
|               |              | 3-phase 3-wire         | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire |
| 03H           | 40201        | Status of alarm output |                     |                     |                |

### (2) Response

If status request is performed normally, the following response will be returned from this product side.

Example) Data address : 40201, Number of data : 1.

| 1       | 2             | 3                 | 4                 | 5 | 6   | 7 |
|---------|---------------|-------------------|-------------------|---|-----|---|
| Address | Function code | Answer byte count | Alarm-output data |   | CRC |   |

#### ● Bit allocation of alarm-output data

| B15 | B14 | B13 | B12 | B11 | B10 | B9 | B8 | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 |
|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|
| —   | —   | —   | —   | —   | —   | —  | ②  | —  | —  | —  | —  | —  | —  | —  | ①  |

| Bit | Name           | OFF (0)      | ON (1)    |
|-----|----------------|--------------|-----------|
| ①   | Alarm output 1 | No detection | Detection |
| ②   | Alarm output 2 |              |           |

## 7.6 Model information request

It is used for reading model information, rated voltage, and the rated current in this product.  
There is no broadcast. A function code designates 03H.

### (1) The request of data (Query)

When a model information demand is performed, it is necessary to designate the start address of data to acquire.  
When a data address is transmitted, please subtract 40001 from the address of a data-address list.  
The number of data should designate the tale of the data to request.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 03H           | 01F4H        |   | 0003H          |   | 45C5H |   |

### Data address list

| Function code | Data address | Model                            |                     |                     |                |
|---------------|--------------|----------------------------------|---------------------|---------------------|----------------|
|               |              | 3-phase 3-wire                   | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire |
| 03H           | 40501        | Model information, Type code     |                     |                     |                |
|               | 40502        | Model information, Phase wire    |                     |                     |                |
|               | 40503        | Model information, Rated voltage |                     |                     |                |

### (2) Response

If a model information request is performed normally, the following response will be returned from this product side.

Example) Data address : 40501, Number of data : 3.

| 1       | 2             | 3                 | 4         | 5 | 6          | 7 | 8             | 9 | 10  | 11 |
|---------|---------------|-------------------|-----------|---|------------|---|---------------|---|-----|----|
| Address | Function code | Answer byte count | Type code |   | Phase wire |   | Rated voltage |   | CRC |    |

#### ● Model information. Type code

| Type | Communication data |
|------|--------------------|
| SQLC | 0010H              |

#### ● Model information. Phase wire

| Type                            | Communication data |
|---------------------------------|--------------------|
| Three-phase three-wire          | 0001H              |
| Single-phase three-wire (R-W-B) | 0002H              |
| Single-phase three-wire (R-W-Y) | 0003H              |
| Single-phase three-wire (Y-W-B) | 0004H              |
| Single-phase                    | 0005H              |
| Three-phase four-wire           | 0006H              |
| Three-phase three-wire 2VT3CT   | 0007H              |

#### ● Model information. Rated voltage.

| Rated voltage     | Communication data |
|-------------------|--------------------|
| AC110V or 110/√3V | 0001H              |
| AC220V or 220/√3V | 0002H              |
| AC440/√3V         | 0003H              |

## 7.7 Measurement value request

It is used for reading a measurement value in this product.

There is no broadcast. A function code designates 04H.

### (1) The request of data (Query)

In case it performs setting value request, it is necessary to designate the start address of data to acquire.

If a data address is transmitted, please subtract 30001 from the address of a data-address list.

The number of data should designate the tale of the data to request.

< Caution > Electric energy (Wh, varh) serves as 2 words (4 bytes) composition. Please give the number of data as 2. And, the point (data 0000H fixation) where a measurement value does not exist depending on a phase wire is also treated as one data.

< Caution > As for a general measurement value and harmonic measurement value (current / voltage) and harmonic measurement value (current / voltage, maximum value), addresses are different. Therefore, it cannot read by data request once. Please perform a data request individually.

| 1       | 2             | 3            | 4 | 5              | 6 | 7     | 8 |
|---------|---------------|--------------|---|----------------|---|-------|---|
| Address | Function code | Data address |   | Number of data |   | CRC   |   |
| 01H     | 04H           | 0000H        |   | 001DH          |   | 3003H |   |

Data-address list (1)

| Function code | Data address | Model                                |                                      |                                      |                                      |
|---------------|--------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|               |              | 3-phase 3-wire                       | Single-phase 3-wire                  | Single-phase                         | 3-phase 4-wire                       |
| 04            | 30001        | 0000H (Fixation)                     | 0000H (Fixation)                     | 0000H (Fixation)                     | Voltage (RW)                         |
| 04            | 30002        | 0000H (Fixation)                     | 0000H (Fixation)                     | 0000H (Fixation)                     | Voltage (YW)                         |
| 04            | 30003        | 0000H (Fixation)                     | 0000H (Fixation)                     | 0000H (Fixation)                     | Voltage (BW)                         |
| 04            | 30004        | Voltage (RY)                         | Voltage (RW)                         | Voltage                              | Voltage (RY)                         |
| 04            | 30005        | Voltage (YB)                         | Voltage (BW)                         | 0000H (Fixation)                     | Voltage (YB)                         |
| 04            | 30006        | Voltage (BR)                         | Voltage (RB)                         | 0000H (Fixation)                     | Voltage (BR)                         |
| 04            | 30007        | Current (R)                          | Current (R)                          | Current                              | Current (R)                          |
| 04            | 30008        | Current (Y)                          | Current (W)                          | 0000H (Fixation)                     | Current (Y)                          |
| 04            | 30009        | Current (B)                          | Current (B)                          | 0000H (Fixation)                     | Current (B)                          |
| 04            | 30010        | 0000H (Fixation)                     | 0000H (Fixation)                     | 0000H (Fixation)                     | Current (W)                          |
| 04            | 30011        | Demand current (R)                   | Demand current (R)                   | Demand current                       | Demand current (R)                   |
| 04            | 30012        | Demand current (Y)                   | Demand current (W)                   | 0000H (Fixation)                     | Demand current (Y)                   |
| 04            | 30013        | Demand current (B)                   | Demand current (B)                   | 0000H (Fixation)                     | Demand current (B)                   |
| 04            | 30014        | 0000H (Fixation)                     | 0000H (Fixation)                     | 0000H (Fixation)                     | Demand current (W)                   |
| 04            | 30015        | Active power                         | Active power                         | Active power                         | Active power                         |
| 04            | 30016        | Demand power                         | Demand power                         | Demand power                         | Demand power                         |
| 04            | 30017        | Watt-hour (Power receiving) High     | Watt-hour (Power receiving) High     | Watt-hour (Power receiving) High     | Watt-hour (Power receiving) High     |
| 04            | 30018        | Watt-hour (Power receiving) Low      | Watt-hour (Power receiving) Low      | Watt-hour (Power receiving) Low      | Watt-hour (Power receiving) Low      |
| 04            | 30019        | Watt-hour (Power transmission) High  | Watt-hour (Power transmission) High  | Watt-hour (Power transmission) High  | Watt-hour (Power transmission) High  |
| 04            | 30020        | Watt-hour (Power transmission) Low   | Watt-hour (Power transmission) Low   | Watt-hour (Power transmission) Low   | Watt-hour (Power transmission) Low   |
| 04            | 30021        | Reactive power                       | Reactive power                       | Reactive power                       | Reactive power                       |
| 04            | 30022        | var-hour (Power receiving LAG) High  | var-hour (Power receiving LAG) High  | var-hour (Power receiving LAG) High  | var-hour (Power receiving LAG) High  |
| 04            | 30023        | var-hour (Power receiving LAG) Low   | var-hour (Power receiving LAG) Low   | var-hour (Power receiving LAG) Low   | var-hour (Power receiving LAG) Low   |
| 04            | 30024        | var-hour (Power receiving LEAD) High | var-hour (Power receiving LEAD) High | var-hour (Power receiving LEAD) High | var-hour (Power receiving LEAD) High |
| 04            | 30025        | var-hour (Power receiving LEAD) Low  | var-hour (Power receiving LEAD) Low  | var-hour (Power receiving LEAD) Low  | var-hour (Power receiving LEAD) Low  |

Data-address list (2)

| Function code | Data address | Model                                   |                                         |                                         |                                         |
|---------------|--------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
|               |              | 3-phase 3-wire                          | Single-phase 3-wire                     | Single-phase                            | 3-phase 4-wire                          |
| 04            | 30026        | var-hour (Power transmission LAG) High  | var-hour (Power transmission LAG) High  | var-hour (Power transmission LAG) High  | var-hour (Power transmission LAG) High  |
| 04            | 30027        | var-hour (Power transmission LAG) Low   | var-hour (Power transmission LAG) Low   | var-hour (Power transmission LAG) Low   | var-hour (Power transmission LAG) Low   |
| 04            | 30028        | var-hour (Power transmission LEAD) High | var-hour (Power transmission LEAD) High | var-hour (Power transmission LEAD) High | var-hour (Power transmission LEAD) High |
| 04            | 30029        | var-hour (Power transmission LEAD) Low  | var-hour (Power transmission LEAD) Low  | var-hour (Power transmission LEAD) Low  | var-hour (Power transmission LEAD) Low  |
| 04            | 30030        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Apparent power                          |
| 04            | 30031        | Power factor                            | Power factor                            | Power factor                            | Power factor                            |
| 04            | 30032        | Frequency                               | Frequency                               | Frequency                               | Frequency                               |
| 04            | 30033        | Current leakage                         | Current leakage                         | Current leakage                         | 0000H (Fixation)                        |
| 04            | 30034        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Maximum voltage (RW)                    |
| 04            | 30035        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Maximum voltage (YW)                    |
| 04            | 30036        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Maximum voltage (BW)                    |
| 04            | 30037        | Maximum voltage (RY)                    | Maximum voltage (RW)                    | Maximum voltage                         | Maximum voltage (RY)                    |
| 04            | 30038        | Maximum voltage (YB)                    | Maximum voltage (BW)                    | 0000H (Fixation)                        | Maximum voltage (YB)                    |
| 04            | 30039        | Maximum voltage (BR)                    | Maximum voltage (RB)                    | 0000H (Fixation)                        | Maximum voltage (BR)                    |
| 04            | 30040        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Minimum voltage (RW)                    |
| 04            | 30041        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Minimum voltage (YW)                    |
| 04            | 30042        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Minimum voltage (BW)                    |
| 04            | 30043        | Minimum voltage (RY)                    | Minimum voltage (RW)                    | Minimum voltage                         | Minimum voltage (RY)                    |
| 04            | 30044        | Minimum voltage (YB)                    | Minimum voltage (BW)                    | 0000H (Fixation)                        | Minimum voltage (YB)                    |
| 04            | 30045        | Minimum voltage (BR)                    | Minimum voltage (RB)                    | 0000H (Fixation)                        | Minimum voltage (BR)                    |
| 04            | 30046        | Maximum current (R)                     | Maximum current (R)                     | Maximum current                         | Maximum current (R)                     |
| 04            | 30047        | Maximum current (Y)                     | Maximum current (W)                     | 0000H (Fixation)                        | Maximum current (Y)                     |
| 04            | 30048        | Maximum current (B)                     | Maximum current (B)                     | 0000H (Fixation)                        | Maximum current (B)                     |
| 04            | 30049        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Maximum current (W)                     |
| 04            | 30050        | Minimum current (R)                     | Minimum current (R)                     | Minimum current                         | Minimum current (R)                     |
| 04            | 30051        | Minimum current (Y)                     | Minimum current (W)                     | 0000H (Fixation)                        | Minimum current (Y)                     |
| 04            | 30052        | Minimum current (B)                     | Minimum current (B)                     | 0000H (Fixation)                        | Minimum current (B)                     |
| 04            | 30053        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Minimum current (W)                     |
| 04            | 30054        | Maximum demand current (R)              | Maximum demand current (R)              | Maximum demand current                  | Maximum demand current (R)              |
| 04            | 30055        | Maximum demand current (Y)              | Maximum demand current (W)              | 0000H (Fixation)                        | Maximum demand current (Y)              |
| 04            | 30056        | Maximum demand current (B)              | Maximum demand current (B)              | 0000H (Fixation)                        | Maximum demand current (B)              |
| 04            | 30057        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Maximum demand current (W)              |
| 04            | 30058        | Minimum demand current (R)              | Minimum demand current (R)              | Minimum demand current                  | Minimum demand current (R)              |
| 04            | 30059        | Minimum demand current (Y)              | Minimum demand current (W)              | 0000H (Fixation)                        | Minimum demand current (Y)              |
| 04            | 30060        | Minimum demand current (B)              | Minimum demand current (B)              | 0000H (Fixation)                        | Minimum demand current (B)              |
| 04            | 30061        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Minimum demand current (W)              |
| 04            | 30062        | Maximum power                           | Maximum power                           | Maximum power                           | Maximum power                           |
| 04            | 30063        | Minimum power                           | Minimum power                           | Minimum power                           | Minimum power                           |
| 04            | 30064        | Maximum demand power                    | Maximum demand power                    | Maximum demand power                    | Maximum demand power                    |
| 04            | 30065        | Minimum demand power                    | Minimum demand power                    | Minimum demand power                    | Minimum demand power                    |
| 04            | 30066        | Maximum reactive power                  | Maximum reactive power                  | Maximum reactive power                  | Maximum reactive power                  |
| 04            | 30067        | Minimum reactive power                  | Minimum reactive power                  | Minimum reactive power                  | Minimum reactive power                  |
| 04            | 30068        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Maximum apparent power                  |
| 04            | 30069        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                        | Minimum apparent power                  |
| 04            | 30070        | Maximum power factor                    | Maximum power factor                    | Maximum power factor                    | Maximum power factor                    |
| 04            | 30071        | Minimum power factor                    | Minimum power factor                    | Minimum power factor                    | Minimum power factor                    |
| 04            | 30072        | Maximum frequency                       | Maximum frequency                       | Maximum frequency                       | Maximum frequency                       |
| 04            | 30073        | Minimum frequency                       | Minimum frequency                       | Minimum frequency                       | Minimum frequency                       |
| 04            | 30074        | Maximum current leakage                 | Maximum current leakage                 | Maximum current leakage                 | 0000H (Fixation)                        |

Data-address list (3)

| Function code | Data address | Model                                              |                                                    |                                                 |                                                    |
|---------------|--------------|----------------------------------------------------|----------------------------------------------------|-------------------------------------------------|----------------------------------------------------|
|               |              | 3-phase 3-wire                                     | Single-phase 3-wire                                | Single-phase                                    | 3-phase 4-wire                                     |
| 04            | 30101        | Fundamental-wave effective value Voltage RY        | Fundamental-wave effective value Voltage RW        | Fundamental-wave effective value Voltage        | Fundamental-wave effective value Voltage RW        |
| 04            | 30102        | Fundamental-wave effective value Voltage YB        | Fundamental-wave effective value Voltage BW        | 0000H (Fixation)                                | Fundamental-wave effective value Voltage YW        |
| 04            | 30103        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Fundamental-wave effective value Voltage BW        |
| 04            | 30104        | Distortion factor Voltage RY                       | Distortion factor Voltage RW                       | Distortion factor Voltage                       | Distortion factor Voltage RW                       |
| 04            | 30105        | Distortion factor Voltage YB                       | Distortion factor Voltage BW                       | 0000H (Fixation)                                | Distortion factor Voltage YW                       |
| 04            | 30106        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Distortion factor Voltage BW                       |
| 04            | 30107        | Harmonic 5th conversion effective value Voltage RY | Harmonic 5th conversion effective value Voltage RW | Harmonic 5th conversion effective value Voltage | Harmonic 5th conversion effective value Voltage RW |
| 04            | 30108        | Harmonic 5th conversion effective value Voltage YB | Harmonic 5th conversion effective value Voltage BW | 0000H (Fixation)                                | Harmonic 5th conversion effective value Voltage YW |
| 04            | 30109        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 5th conversion effective value Voltage BW |
| 04            | 30110        | Harmonic 5th conversion content rate Voltage RY    | Harmonic 5th conversion content rate Voltage RW    | Harmonic 5th conversion content rate Voltage    | Harmonic 5th conversion content rate Voltage RW    |
| 04            | 30111        | Harmonic 5th conversion content rate Voltage YB    | Harmonic 5th conversion content rate Voltage BW    | 0000H (Fixation)                                | Harmonic 5th conversion content rate Voltage YW    |
| 04            | 30112        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 5th conversion content rate Voltage BW    |
| 04            | 30113        | Harmonic 3th effective value Voltage RY            | Harmonic 3th effective value Voltage RW            | Harmonic 3th effective value Voltage            | Harmonic 3th effective value Voltage RW            |
| 04            | 30114        | Harmonic 3th effective value Voltage YB            | Harmonic 3th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 3th effective value Voltage YW            |
| 04            | 30115        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 3th effective value Voltage BW            |
| 04            | 30116        | Harmonic 4th effective value Voltage RY            | Harmonic 4th effective value Voltage RW            | Harmonic 4th effective value Voltage            | Harmonic 4th effective value Voltage RW            |
| 04            | 30117        | Harmonic 4th effective value Voltage YB            | Harmonic 4th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 4th effective value Voltage YW            |
| 04            | 30118        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 4th effective value Voltage BW            |
| 04            | 30119        | Harmonic 5th effective value Voltage RY            | Harmonic 5th effective value Voltage RW            | Harmonic 5th effective value Voltage            | Harmonic 5th effective value Voltage RW            |
| 04            | 30120        | Harmonic 5th effective value Voltage YB            | Harmonic 5th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 5th effective value Voltage YW            |
| 04            | 30121        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 5th effective value Voltage BW            |
| 04            | 30122        | Harmonic 7th effective value Voltage RY            | Harmonic 7th effective value Voltage RW            | Harmonic 7th effective value Voltage            | Harmonic 7th effective value Voltage RW            |
| 04            | 30123        | Harmonic 7th effective value Voltage YB            | Harmonic 7th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 7th effective value Voltage YW            |
| 04            | 30124        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 7th effective value Voltage BW            |
| 04            | 30125        | Harmonic 9th effective value Voltage RY            | Harmonic 9th effective value Voltage RW            | Harmonic 9th effective value Voltage            | Harmonic 9th effective value Voltage RW            |
| 04            | 30126        | Harmonic 9th effective value Voltage YB            | Harmonic 9th effective value Voltage BW            | 0000H (Fixation)                                | Harmonic 9th effective value Voltage YW            |
| 04            | 30127        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                | Harmonic 9th effective value Voltage BW            |
| 04            | 30128        | Harmonic 11th effective value Voltage RY           | Harmonic 11th effective value Voltage RW           | Harmonic 11th effective value Voltage           | Harmonic 11th effective value Voltage RW           |
| 04            | 30129        | Harmonic 11th effective value Voltage YB           | Harmonic 11th effective value Voltage BW           | 0000H (Fixation)                                | Harmonic 11th effective value Voltage YW           |

Data-address list (4)

| Function code | Data address | Model                                    |                                          |                                       |                                          |
|---------------|--------------|------------------------------------------|------------------------------------------|---------------------------------------|------------------------------------------|
|               |              | 3-phase 3-wire                           | Single-phase 3-wire                      | Single-phase                          | 3-phase 4-wire                           |
| 04            | 30130        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 11th effective value Voltage BW |
| 04            | 30131        | Harmonic 13th effective value Voltage RY | Harmonic 13th effective value Voltage RW | Harmonic 13th effective value Voltage | Harmonic 13th effective value Voltage RW |
| 04            | 30132        | Harmonic 13th effective value Voltage YB | Harmonic 13th effective value Voltage BW | 0000H (Fixation)                      | Harmonic 13th effective value Voltage YW |
| 04            | 30133        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 13th effective value Voltage BW |
| 04            | 30134        | Harmonic 15th effective value Voltage RY | Harmonic 15th effective value Voltage RW | Harmonic 15th effective value Voltage | Harmonic 15th effective value Voltage RW |
| 04            | 30135        | Harmonic 15th effective value Voltage YB | Harmonic 15th effective value Voltage BW | 0000H (Fixation)                      | Harmonic 15th effective value Voltage YW |
| 04            | 30136        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 15th effective value Voltage BW |
| 04            | 30137        | Harmonic 3th content rate Voltage RY     | Harmonic 3th content rate Voltage RW     | Harmonic 3th content rate Voltage     | Harmonic 3th content rate Voltage RW     |
| 04            | 30138        | Harmonic 3th content rate Voltage YB     | Harmonic 3th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 3th content rate Voltage YW     |
| 04            | 30139        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 3th content rate Voltage BW     |
| 04            | 30140        | Harmonic 4th content rate Voltage RY     | Harmonic 4th content rate Voltage RW     | Harmonic 4th content rate Voltage     | Harmonic 4th content rate Voltage RW     |
| 04            | 30141        | Harmonic 4th content rate Voltage YB     | Harmonic 4th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 4th content rate Voltage YW     |
| 04            | 30142        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 4th content rate Voltage BW     |
| 04            | 30143        | Harmonic 5th content rate Voltage RY     | Harmonic 5th content rate Voltage RW     | Harmonic 5th content rate Voltage     | Harmonic 5th content rate Voltage RW     |
| 04            | 30144        | Harmonic 5th content rate Voltage YB     | Harmonic 5th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 5th content rate Voltage YW     |
| 04            | 30145        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 5th content rate Voltage BW     |
| 04            | 30146        | Harmonic 7th content rate Voltage RY     | Harmonic 7th content rate Voltage RW     | Harmonic 7th content rate Voltage     | Harmonic 7th content rate Voltage RW     |
| 04            | 30147        | Harmonic 7th content rate Voltage YB     | Harmonic 7th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 7th content rate Voltage YW     |
| 04            | 30148        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 7th content rate Voltage BW     |
| 04            | 30149        | Harmonic 9th content rate Voltage RY     | Harmonic 9th content rate Voltage RW     | Harmonic 9th content rate Voltage     | Harmonic 9th content rate Voltage RW     |
| 04            | 30150        | Harmonic 9th content rate Voltage YB     | Harmonic 9th content rate Voltage BW     | 0000H (Fixation)                      | Harmonic 9th content rate Voltage YW     |
| 04            | 30151        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 9th content rate Voltage BW     |
| 04            | 30152        | Harmonic 11th content rate Voltage RY    | Harmonic 11th content rate Voltage RW    | Harmonic 11th content rate Voltage    | Harmonic 11th content rate Voltage RW    |
| 04            | 30153        | Harmonic 11th content rate Voltage YB    | Harmonic 11th content rate Voltage BW    | 0000H (Fixation)                      | Harmonic 11th content rate Voltage YW    |
| 04            | 30154        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 11th content rate Voltage BW    |
| 04            | 30155        | Harmonic 13th content rate Voltage RY    | Harmonic 13th content rate Voltage RW    | Harmonic 13th content rate Voltage    | Harmonic 13th content rate Voltage RW    |
| 04            | 30156        | Harmonic 13th content rate Voltage YB    | Harmonic 13th content rate Voltage BW    | 0000H (Fixation)                      | Harmonic 13th content rate Voltage YW    |
| 04            | 30157        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 13th content rate Voltage BW    |
| 04            | 30158        | Harmonic 15th content rate Voltage RY    | Harmonic 15th content rate Voltage RW    | Harmonic 15th content rate Voltage    | Harmonic 15th content rate Voltage RW    |
| 04            | 30159        | Harmonic 15th content rate Voltage YB    | Harmonic 15th content rate Voltage BW    | 0000H (Fixation)                      | Harmonic 15th content rate Voltage YW    |
| 04            | 30160        | 0000H (Fixation)                         | 0000H (Fixation)                         | 0000H (Fixation)                      | Harmonic 15th content rate Voltage BW    |

Data-address list (5)

| Function code | Data address | Model                                                         |                                                               |                                                            |                                                               |
|---------------|--------------|---------------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------|
|               |              | 3-phase 3-wire                                                | Single-phase 3-wire                                           | Single-phase                                               | 3-phase 4-wire                                                |
| 04            | 30201        | Maximum fundamental-wave effective value<br>Voltage RY        | Maximum fundamental-wave effective value<br>Voltage RW        | Maximum fundamental-wave effective value<br>Voltage        | Maximum fundamental-wave effective value<br>Voltage RW        |
| 04            | 30202        | Maximum fundamental-wave effective value<br>Voltage YB        | Maximum fundamental-wave effective value<br>Voltage BW        | 0000H (Fixation)                                           | Maximum fundamental-wave effective value<br>Voltage YW        |
| 04            | 30203        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Maximum fundamental-wave effective value<br>Voltage BW        |
| 04            | 30204        | Maximum distortion factor Voltage RY                          | Maximum distortion factor Voltage RW                          | Maximum distortion factor Voltage                          | Maximum distortion factor Voltage RW                          |
| 04            | 30205        | Maximum distortion factor Voltage YB                          | Maximum distortion factor Voltage BW                          | 0000H (Fixation)                                           | Maximum distortion factor Voltage YW                          |
| 04            | 30206        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Maximum distortion factor Voltage BW                          |
| 04            | 30207        | Harmonic 5th conversion effective value<br>Maximum voltage RY | Harmonic 5th conversion effective value<br>Maximum voltage RW | Harmonic 5th conversion effective value<br>Maximum voltage | Harmonic 5th conversion effective value<br>Maximum voltage RW |
| 04            | 30208        | Harmonic 5th conversion effective value<br>Maximum voltage YB | Harmonic 5th conversion effective value<br>Maximum voltage BW | 0000H (Fixation)                                           | Harmonic 5th conversion effective value<br>Maximum voltage YW |
| 04            | 30209        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 5th conversion effective value<br>Maximum voltage BW |
| 04            | 30210        | Harmonic 5th conversion content rate<br>Maximum voltage RY    | Harmonic 5th conversion content rate<br>Maximum voltage RW    | Harmonic 5th conversion content rate<br>Maximum voltage    | Harmonic 5th conversion content rate<br>Maximum voltage RW    |
| 04            | 30211        | Harmonic 5th conversion content rate<br>Maximum voltage YB    | Harmonic 5th conversion content rate<br>Maximum voltage BW    | 0000H (Fixation)                                           | Harmonic 5th conversion content rate<br>Maximum voltage YW    |
| 04            | 30212        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 5th conversion content rate<br>Maximum voltage BW    |
| 04            | 30213        | Harmonic 3th effective value<br>Maximum voltage RY            | Harmonic 3th effective value<br>Maximum voltage RW            | Harmonic 3th effective value<br>Maximum voltage            | Harmonic 3th effective value<br>Maximum voltage RW            |
| 04            | 30214        | Harmonic 3th effective value<br>Maximum voltage YB            | Harmonic 3th effective value<br>Maximum voltage BW            | 0000H (Fixation)                                           | Harmonic 3th effective value<br>Maximum voltage YW            |
| 04            | 30215        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 3th effective value<br>Maximum voltage BW            |
| 04            | 30216        | Harmonic 4th effective value<br>Maximum voltage RY            | Harmonic 4th effective value<br>Maximum voltage RW            | Harmonic 4th effective value<br>Maximum voltage            | Harmonic 4th effective value<br>Maximum voltage RW            |
| 04            | 30217        | Harmonic 4th effective value<br>Maximum voltage YB            | Harmonic 4th effective value<br>Maximum voltage BW            | 0000H (Fixation)                                           | Harmonic 4th effective value<br>Maximum voltage YW            |
| 04            | 30218        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 4th effective value<br>Maximum voltage BW            |
| 04            | 30219        | Harmonic 5th effective value<br>Maximum voltage RY            | Harmonic 5th effective value<br>Maximum voltage RW            | Harmonic 5th effective value<br>Maximum voltage            | Harmonic 5th effective value<br>Maximum voltage RW            |
| 04            | 30220        | Harmonic 5th effective value<br>Maximum voltage YB            | Harmonic 5th effective value<br>Maximum voltage BW            | 0000H (Fixation)                                           | Harmonic 5th effective value<br>Maximum voltage YW            |
| 04            | 30221        | 0000H (Fixation)                                              | 0000H (Fixation)                                              | 0000H (Fixation)                                           | Harmonic 5th effective value<br>Maximum voltage BW            |
| 04            | 30222        | Harmonic 7th effective value<br>Maximum voltage RY            | Harmonic 7th effective value<br>Maximum voltage RW            | Harmonic 7th effective value<br>Maximum voltage            | Harmonic 7th effective value<br>Maximum voltage RW            |

Data-address list (6)

| Function code | Data address | Model                                               |                                                     |                                                  |                                                     |
|---------------|--------------|-----------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
|               |              | 3-phase 3-wire                                      | Single-phase 3-wire                                 | Single-phase                                     | 3-phase 4-wire                                      |
| 04            | 30223        | Harmonic 7th effective value<br>Maximum voltage YB  | Harmonic 7th effective value<br>Maximum voltage BW  | 0000H (Fixation)                                 | Harmonic 7th effective value<br>Maximum voltage YW  |
| 04            | 30224        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 7th effective value<br>Maximum voltage BW  |
| 04            | 30225        | Harmonic 9th effective value<br>Maximum voltage RY  | Harmonic 9th effective value<br>Maximum voltage RW  | Harmonic 9th effective value<br>Maximum voltage  | Harmonic 9th effective value<br>Maximum voltage RW  |
| 04            | 30226        | Harmonic 9th effective value<br>Maximum voltage YB  | Harmonic 9th effective value<br>Maximum voltage BW  | 0000H (Fixation)                                 | Harmonic 9th effective value<br>Maximum voltage YW  |
| 04            | 30227        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 9th effective value<br>Maximum voltage BW  |
| 04            | 30228        | Harmonic 11th effective value<br>Maximum voltage RY | Harmonic 11th effective value<br>Maximum voltage RW | Harmonic 11th effective value<br>Maximum voltage | Harmonic 11th effective value<br>Maximum voltage RW |
| 04            | 30229        | Harmonic 11th effective value<br>Maximum voltage YB | Harmonic 11th effective value<br>Maximum voltage BW | 0000H (Fixation)                                 | Harmonic 11th effective value<br>Maximum voltage YW |
| 04            | 30230        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 11th effective value<br>Maximum voltage BW |
| 04            | 30231        | Harmonic 13th effective value<br>Maximum voltage RY | Harmonic 13th effective value<br>Maximum voltage RW | Harmonic 13th effective value<br>Maximum voltage | Harmonic 13th effective value<br>Maximum voltage RW |
| 04            | 30232        | Harmonic 13th effective value<br>Maximum voltage YB | Harmonic 13th effective value<br>Maximum voltage BW | 0000H (Fixation)                                 | Harmonic 13th effective value<br>Maximum voltage YW |
| 04            | 30233        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 13th effective value<br>Maximum voltage BW |
| 04            | 30234        | Harmonic 15th effective value<br>Maximum voltage RY | Harmonic 15th effective value<br>Maximum voltage RW | Harmonic 15th effective value<br>Maximum voltage | Harmonic 15th effective value<br>Maximum voltage RW |
| 04            | 30235        | Harmonic 15th effective value<br>Maximum voltage YB | Harmonic 15th effective value<br>Maximum voltage BW | 0000H (Fixation)                                 | Harmonic 15th effective value<br>Maximum voltage YW |
| 04            | 30236        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 15th effective value<br>Maximum voltage BW |
| 04            | 30237        | Harmonic 3th content rate<br>Maximum voltage RY     | Harmonic 3th content rate<br>Maximum voltage RW     | Harmonic 3th content rate<br>Maximum voltage     | Harmonic 3th content rate<br>Maximum voltage RW     |
| 04            | 30238        | Harmonic 3th content rate<br>Maximum voltage YB     | Harmonic 3th content rate<br>Maximum voltage BW     | 0000H (Fixation)                                 | Harmonic 3th content rate<br>Maximum voltage YW     |
| 04            | 30239        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 3th content rate<br>Maximum voltage BW     |
| 04            | 30240        | Harmonic 4th content rate<br>Maximum voltage RY     | Harmonic 4th content rate<br>Maximum voltage RW     | Harmonic 4th content rate<br>Maximum voltage     | Harmonic 4th content rate<br>Maximum voltage RW     |
| 04            | 30241        | Harmonic 4th content rate<br>Maximum voltage YB     | Harmonic 4th content rate<br>Maximum voltage BW     | 0000H (Fixation)                                 | Harmonic 4th content rate<br>Maximum voltage YW     |
| 04            | 30242        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 4th content rate<br>Maximum voltage BW     |
| 04            | 30243        | Harmonic 5th content rate<br>Maximum voltage RY     | Harmonic 5th content rate<br>Maximum voltage RW     | Harmonic 5th content rate<br>Maximum voltage     | Harmonic 5th content rate<br>Maximum voltage RW     |
| 04            | 30244        | Harmonic 5th content rate<br>Maximum voltage YB     | Harmonic 5th content rate<br>Maximum voltage BW     | 0000H (Fixation)                                 | Harmonic 5th content rate<br>Maximum voltage YW     |
| 04            | 30245        | 0000H (Fixation)                                    | 0000H (Fixation)                                    | 0000H (Fixation)                                 | Harmonic 5th content rate<br>Maximum voltage BW     |



Data-address list (7)

| Function code | Data address | Model                                            |                                                  |                                               |                                                  |
|---------------|--------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------|--------------------------------------------------|
|               |              | 3-phase 3-wire                                   | Single-phase 3-wire                              | Single-phase                                  | 3-phase 4-wire                                   |
| 04            | 30246        | Harmonic 7th content rate<br>Maximum voltage RY  | Harmonic 7th content rate<br>Maximum voltage RW  | Harmonic 7th content rate<br>Maximum voltage  | Harmonic 7th content rate<br>Maximum voltage RW  |
| 04            | 30247        | Harmonic 7th content rate<br>Maximum voltage YB  | Harmonic 7th content rate<br>Maximum voltage BW  | 0000H (Fixation)                              | Harmonic 7th content rate<br>Maximum voltage YW  |
| 04            | 30248        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 7th content rate<br>Maximum voltage BW  |
| 04            | 30249        | Harmonic 9th content rate<br>Maximum voltage RY  | Harmonic 9th content rate<br>Maximum voltage RW  | Harmonic 9th content rate<br>Maximum voltage  | Harmonic 9th content rate<br>Maximum voltage RW  |
| 04            | 30250        | Harmonic 9th content rate<br>Maximum voltage YB  | Harmonic 9th content rate<br>Maximum voltage BW  | 0000H (Fixation)                              | Harmonic 9th content rate<br>Maximum voltage YW  |
| 04            | 30251        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 9th content rate<br>Maximum voltage BW  |
| 04            | 30252        | Harmonic 11th content rate<br>Maximum voltage RY | Harmonic 11th content rate<br>Maximum voltage RW | Harmonic 11th content rate<br>Maximum voltage | Harmonic 11th content rate<br>Maximum voltage RW |
| 04            | 30253        | Harmonic 11th content rate<br>Maximum voltage YB | Harmonic 11th content rate<br>Maximum voltage BW | 0000H (Fixation)                              | Harmonic 11th content rate<br>Maximum voltage YW |
| 04            | 30254        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 11th content rate<br>Maximum voltage BW |
| 04            | 30255        | Harmonic 13th content rate<br>Maximum voltage RY | Harmonic 13th content rate<br>Maximum voltage RW | Harmonic 13th content rate<br>Maximum voltage | Harmonic 13th content rate<br>Maximum voltage RW |
| 04            | 30256        | Harmonic 13th content rate<br>Maximum voltage YB | Harmonic 13th content rate<br>Maximum voltage BW | 0000H (Fixation)                              | Harmonic 13th content rate<br>Maximum voltage YW |
| 04            | 30257        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 13th content rate<br>Maximum voltage BW |
| 04            | 30258        | Harmonic 15th content rate<br>Maximum voltage RY | Harmonic 15th content rate<br>Maximum voltage RW | Harmonic 15th content rate<br>Maximum voltage | Harmonic 15th content rate<br>Maximum voltage RW |
| 04            | 30259        | Harmonic 15th content rate<br>Maximum voltage YB | Harmonic 15th content rate<br>Maximum voltage BW | 0000H (Fixation)                              | Harmonic 15th content rate<br>Maximum voltage YW |
| 04            | 30260        | 0000H (Fixation)                                 | 0000H (Fixation)                                 | 0000H (Fixation)                              | Harmonic 15th content rate<br>Maximum voltage BW |

Data-address list (8)

| Function code | Data address | Model                                             |                                                   |                                                 |                                                   |
|---------------|--------------|---------------------------------------------------|---------------------------------------------------|-------------------------------------------------|---------------------------------------------------|
|               |              | 3-phase 3-wire                                    | Single-phase 3-wire                               | Single-phase                                    | 3-phase 4-wire                                    |
| 04            | 30301        | Fundamental-wave effective value Current R        | Fundamental-wave effective value Current R        | Fundamental-wave effective value Current        | Fundamental-wave effective value Current R        |
| 04            | 30302        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Fundamental-wave effective value Current Y        |
| 04            | 30303        | Fundamental-wave effective value Current B        | Fundamental-wave effective value Current B        | 0000H (Fixation)                                | Fundamental-wave effective value Current B        |
| 04            | 30304        | Distortion factor Current R                       | Distortion factor Current R                       | Distortion factor Current                       | Distortion factor Current R                       |
| 04            | 30305        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Distortion factor Current Y                       |
| 04            | 30306        | Distortion factor Current B                       | Distortion factor Current B                       | 0000H (Fixation)                                | Distortion factor Current B                       |
| 04            | 30307        | Harmonic 5th conversion effective value Current R | Harmonic 5th conversion effective value Current R | Harmonic 5th conversion effective value Current | Harmonic 5th conversion effective value Current R |
| 04            | 30308        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 5th conversion effective value Current Y |
| 04            | 30309        | Harmonic 5th conversion effective value Current B | Harmonic 5th conversion effective value Current B | 0000H (Fixation)                                | Harmonic 5th conversion effective value Current B |
| 04            | 30310        | Harmonic 5th conversion content rate Current R    | Harmonic 5th conversion content rate Current R    | Harmonic 5th conversion content rate Current    | Harmonic 5th conversion content rate Current R    |
| 04            | 30311        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 5th conversion content rate Current Y    |
| 04            | 30312        | Harmonic 5th conversion content rate Current B    | Harmonic 5th conversion content rate Current B    | 0000H (Fixation)                                | Harmonic 5th conversion content rate Current B    |
| 04            | 30313        | Harmonic 3th effective value Current R            | Harmonic 3th effective value Current R            | Harmonic 3th effective value Current            | Harmonic 3th effective value Current R            |
| 04            | 30314        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 3th effective value Current Y            |
| 04            | 30315        | Harmonic 3th effective value Current B            | Harmonic 3th effective value Current B            | 0000H (Fixation)                                | Harmonic 3th effective value Current B            |
| 04            | 30316        | Harmonic 4th effective value Current R            | Harmonic 4th effective value Current R            | Harmonic 4th effective value Current            | Harmonic 4th effective value Current R            |
| 04            | 30317        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 4th effective value Current Y            |
| 04            | 30318        | Harmonic 4th effective value Current B            | Harmonic 4th effective value Current B            | 0000H (Fixation)                                | Harmonic 4th effective value Current B            |
| 04            | 30319        | Harmonic 5th effective value Current R            | Harmonic 5th effective value Current R            | Harmonic 5th effective value Current            | Harmonic 5th effective value Current R            |
| 04            | 30320        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 5th effective value Current Y            |
| 04            | 30321        | Harmonic 5th effective value Current B            | Harmonic 5th effective value Current B            | 0000H (Fixation)                                | Harmonic 5th effective value Current B            |
| 04            | 30322        | Harmonic 7th effective value Current R            | Harmonic 7th effective value Current R            | Harmonic 7th effective value Current            | Harmonic 7th effective value Current R            |
| 04            | 30323        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 7th effective value Current Y            |
| 04            | 30324        | Harmonic 7th effective value Current B            | Harmonic 7th effective value Current B            | 0000H (Fixation)                                | Harmonic 7th effective value Current B            |
| 04            | 30325        | Harmonic 9th effective value Current R            | Harmonic 9th effective value Current R            | Harmonic 9th effective value Current            | Harmonic 9th effective value Current R            |
| 04            | 30326        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 9th effective value Current Y            |
| 04            | 30327        | Harmonic 9th effective value Current B            | Harmonic 9th effective value Current B            | 0000H (Fixation)                                | Harmonic 9th effective value Current B            |
| 04            | 30328        | Harmonic 11th effective value Current R           | Harmonic 11th effective value Current R           | Harmonic 11th effective value Current           | Harmonic 11th effective value Current R           |
| 04            | 30329        | 0000H (Fixation)                                  | 0000H (Fixation)                                  | 0000H (Fixation)                                | Harmonic 11th effective value Current Y           |

Data-address list (9)

| Function code | Data address | Model                                   |                                         |                                       |                                         |
|---------------|--------------|-----------------------------------------|-----------------------------------------|---------------------------------------|-----------------------------------------|
|               |              | 3-phase 3-wire                          | Single-phase 3-wire                     | Single-phase                          | 3-phase 4-wire                          |
| 04            | 30330        | Harmonic 11th effective value Current B | Harmonic 11th effective value Current B | 0000H (Fixation)                      | Harmonic 11th effective value Current B |
| 04            | 30331        | Harmonic 13th effective value Current R | Harmonic 13th effective value Current R | Harmonic 13th effective value Current | Harmonic 13th effective value Current R |
| 04            | 30332        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 13th effective value Current Y |
| 04            | 30333        | Harmonic 13th effective value Current B | Harmonic 13th effective value Current B | 0000H (Fixation)                      | Harmonic 13th effective value Current B |
| 04            | 30334        | Harmonic 15th effective value Current R | Harmonic 15th effective value Current R | Harmonic 15th effective value Current | Harmonic 15th effective value Current R |
| 04            | 30335        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 15th effective value Current Y |
| 04            | 30336        | Harmonic 15th effective value Current B | Harmonic 15th effective value Current B | 0000H (Fixation)                      | Harmonic 15th effective value Current B |
| 04            | 30337        | Harmonic 3th content rate Current R     | Harmonic 3th content rate Current R     | Harmonic 3th content rate Current     | Harmonic 3th content rate Current R     |
| 04            | 30338        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 3th content rate Current Y     |
| 04            | 30339        | Harmonic 3th content rate Current B     | Harmonic 3th content rate Current B     | 0000H (Fixation)                      | Harmonic 3th content rate Current B     |
| 04            | 30340        | Harmonic 4th content rate Current R     | Harmonic 4th content rate Current R     | Harmonic 4th content rate Current     | Harmonic 4th content rate Current R     |
| 04            | 30341        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 4th content rate Current Y     |
| 04            | 30342        | Harmonic 4th content rate Current B     | Harmonic 4th content rate Current B     | 0000H (Fixation)                      | Harmonic 4th content rate Current B     |
| 04            | 30343        | Harmonic 5th content rate Current R     | Harmonic 5th content rate Current R     | Harmonic 5th content rate Current     | Harmonic 5th content rate Current R     |
| 04            | 30344        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 5th content rate Current Y     |
| 04            | 30345        | Harmonic 5th content rate Current B     | Harmonic 5th content rate Current B     | 0000H (Fixation)                      | Harmonic 5th content rate Current B     |
| 04            | 30346        | Harmonic 7th content rate Current R     | Harmonic 7th content rate Current R     | Harmonic 7th content rate Current     | Harmonic 7th content rate Current R     |
| 04            | 30347        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 7th content rate Current Y     |
| 04            | 30348        | Harmonic 7th content rate Current B     | Harmonic 7th content rate Current B     | 0000H (Fixation)                      | Harmonic 7th content rate Current B     |
| 04            | 30349        | Harmonic 9th content rate Current R     | Harmonic 9th content rate Current R     | Harmonic 9th content rate Current     | Harmonic 9th content rate Current R     |
| 04            | 30350        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 9th content rate Current Y     |
| 04            | 30351        | Harmonic 9th content rate Current B     | Harmonic 9th content rate Current B     | 0000H (Fixation)                      | Harmonic 9th content rate Current B     |
| 04            | 30352        | Harmonic 11th content rate Current R    | Harmonic 11th content rate Current R    | Harmonic 11th content rate Current    | Harmonic 11th content rate Current R    |
| 04            | 30353        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 11th content rate Current Y    |
| 04            | 30354        | Harmonic 11th content rate Current B    | Harmonic 11th content rate Current B    | 0000H (Fixation)                      | Harmonic 11th content rate Current B    |
| 04            | 30355        | Harmonic 13th content rate Current R    | Harmonic 13th content rate Current R    | Harmonic 13th content rate Current    | Harmonic 13th content rate Current R    |
| 04            | 30356        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 13th content rate Current Y    |
| 04            | 30357        | Harmonic 13th content rate Current B    | Harmonic 13th content rate Current B    | 0000H (Fixation)                      | Harmonic 13th content rate Current B    |
| 04            | 30358        | Harmonic 15th content rate Current R    | Harmonic 15th content rate Current R    | Harmonic 15th content rate Current    | Harmonic 15th content rate Current R    |
| 04            | 30359        | 0000H (Fixation)                        | 0000H (Fixation)                        | 0000H (Fixation)                      | Harmonic 15th content rate Current Y    |
| 04            | 30360        | Harmonic 15th content rate Current B    | Harmonic 15th content rate Current B    | 0000H (Fixation)                      | Harmonic 15th content rate Current B    |

Data-address list (10)

| Function code | Data address | Model                                                        |                                                              |                                                            |                                                              |
|---------------|--------------|--------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------|
|               |              | 3-phase 3-wire                                               | Single-phase 3-wire                                          | Single-phase                                               | 3-phase 4-wire<br>3-phase 3-wire 2VT3CT                      |
| 04            | 30401        | Maximum fundamental-wave effective value<br>Current R        | Maximum fundamental-wave effective value<br>Current R        | Maximum fundamental-wave effective value<br>Current        | Maximum fundamental-wave effective value<br>Current R        |
| 04            | 30402        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Maximum fundamental-wave effective value<br>Current Y        |
| 04            | 30403        | Maximum fundamental-wave effective value<br>Current B        | Maximum fundamental-wave effective value<br>Current B        | 0000H (Fixation)                                           | Maximum fundamental-wave effective value<br>Current B        |
| 04            | 30404        | Maximum distortion factor<br>Current R                       | Maximum distortion factor<br>Current R                       | Maximum distortion factor<br>Current                       | Maximum distortion factor<br>Current R                       |
| 04            | 30405        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Maximum distortion factor<br>Current Y                       |
| 04            | 30406        | Maximum distortion factor<br>Current B                       | Maximum distortion factor<br>Current B                       | 0000H (Fixation)                                           | Maximum distortion factor<br>Current B                       |
| 04            | 30407        | Harmonic 5th conversion effective value<br>Maximum current R | Harmonic 5th conversion effective value<br>Maximum current R | Harmonic 5th conversion effective value<br>Maximum current | Harmonic 5th conversion effective value<br>Maximum current R |
| 04            | 30408        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 5th conversion effective value<br>Maximum current Y |
| 04            | 30409        | Harmonic 5th conversion effective value<br>Maximum current B | Harmonic 5th conversion effective value<br>Maximum current B | 0000H (Fixation)                                           | Harmonic 5th conversion effective value<br>Maximum current B |
| 04            | 30410        | Harmonic 5th conversion content rate<br>Maximum current R    | Harmonic 5th conversion content rate<br>Maximum current R    | Harmonic 5th conversion content rate<br>Maximum current    | Harmonic 5th conversion content rate<br>Maximum current R    |
| 04            | 30411        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 5th conversion content rate<br>Maximum current Y    |
| 04            | 30412        | Harmonic 5th conversion content rate<br>Maximum current B    | Harmonic 5th conversion content rate<br>Maximum current B    | 0000H (Fixation)                                           | Harmonic 5th conversion content rate<br>Maximum current B    |
| 04            | 30413        | Harmonic 3th effective value<br>Maximum current R            | Harmonic 3th effective value<br>Maximum current R            | Harmonic 3th effective value<br>Maximum current            | Harmonic 3th effective value<br>Maximum current R            |
| 04            | 30414        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 3th effective value<br>Maximum current Y            |
| 04            | 30415        | Harmonic 3th effective value<br>Maximum current B            | Harmonic 3th effective value<br>Maximum current B            | 0000H (Fixation)                                           | Harmonic 3th effective value<br>Maximum current B            |
| 04            | 30416        | Harmonic 4th effective value<br>Maximum current R            | Harmonic 4th effective value<br>Maximum current R            | Harmonic 4th effective value<br>Maximum current            | Harmonic 4th effective value<br>Maximum current R            |
| 04            | 30417        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 4th effective value<br>Maximum current Y            |
| 04            | 30418        | Harmonic 4th effective value<br>Maximum current B            | Harmonic 4th effective value<br>Maximum current B            | 0000H (Fixation)                                           | Harmonic 4th effective value<br>Maximum current B            |
| 04            | 30419        | Harmonic 5th effective value<br>Maximum current R            | Harmonic 5th effective value<br>Maximum current R            | Harmonic 5th effective value<br>Maximum current            | Harmonic 5th effective value<br>Maximum current R            |
| 04            | 30420        | 0000H (Fixation)                                             | 0000H (Fixation)                                             | 0000H (Fixation)                                           | Harmonic 5th effective value<br>Maximum current Y            |
| 04            | 30421        | Harmonic 5th effective value<br>Maximum current B            | Harmonic 5th effective value<br>Maximum current B            | 0000H (Fixation)                                           | Harmonic 5th effective value<br>Maximum current B            |
| 04            | 30422        | Harmonic 7th effective value<br>Maximum current R            | Harmonic 7th effective value<br>Maximum current R            | Harmonic 7th effective value<br>Maximum current            | Harmonic 7th effective value<br>Maximum current R            |

Data-address list (11)

| Function code | Data address | Model                                              |                                                    |                                                  |                                                    |
|---------------|--------------|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------|----------------------------------------------------|
|               |              | 3-phase 3-wire                                     | Single-phase 3-wire                                | Single-phase                                     | 3-phase 4-wire<br>3-phase 3-wire 2VT3CT            |
| 04            | 30423        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 7th effective value<br>Maximum current Y  |
| 04            | 30424        | Harmonic 7th effective value<br>Maximum current B  | Harmonic 7th effective value<br>Maximum current B  | 0000H (Fixation)                                 | Harmonic 7th effective value<br>Maximum current B  |
| 04            | 30425        | Harmonic 9th effective value<br>Maximum current R  | Harmonic 9th effective value<br>Maximum current R  | Harmonic 9th effective value<br>Maximum current  | Harmonic 9th effective value<br>Maximum current R  |
| 04            | 30426        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 9th effective value<br>Maximum current Y  |
| 04            | 30427        | Harmonic 9th effective value<br>Maximum current B  | Harmonic 9th effective value<br>Maximum current B  | 0000H (Fixation)                                 | Harmonic 9th effective value<br>Maximum current B  |
| 04            | 30428        | Harmonic 11th effective value<br>Maximum current R | Harmonic 11th effective value<br>Maximum current R | Harmonic 11th effective value<br>Maximum current | Harmonic 11th effective value<br>Maximum current R |
| 04            | 30429        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 11th effective value<br>Maximum current Y |
| 04            | 30430        | Harmonic 11th effective value<br>Maximum current B | Harmonic 11th effective value<br>Maximum current B | 0000H (Fixation)                                 | Harmonic 11th effective value<br>Maximum current B |
| 04            | 30431        | Harmonic 13th effective value<br>Maximum current R | Harmonic 13th effective value<br>Maximum current R | Harmonic 13th effective value<br>Maximum current | Harmonic 13th effective value<br>Maximum current R |
| 04            | 30432        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 13th effective value<br>Maximum current Y |
| 04            | 30433        | Harmonic 13th effective value<br>Maximum current B | Harmonic 13th effective value<br>Maximum current B | 0000H (Fixation)                                 | Harmonic 13th effective value<br>Maximum current B |
| 04            | 30434        | Harmonic 15th effective value<br>Maximum current R | Harmonic 15th effective value<br>Maximum current R | Harmonic 15th effective value<br>Maximum current | Harmonic 15th effective value<br>Maximum current R |
| 04            | 30435        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 15th effective value<br>Maximum current Y |
| 04            | 30436        | Harmonic 15th effective value<br>Maximum current B | Harmonic 15th effective value<br>Maximum current B | 0000H (Fixation)                                 | Harmonic 15th effective value<br>Maximum current B |
| 04            | 30437        | Harmonic 3th content rate<br>Maximum current R     | Harmonic 3th content rate<br>Maximum current R     | Harmonic 3th content rate<br>Maximum current     | Harmonic 3th content rate<br>Maximum current R     |
| 04            | 30438        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 3th content rate<br>Maximum current Y     |
| 04            | 30439        | Harmonic 3th content rate<br>Maximum current B     | Harmonic 3th content rate<br>Maximum current B     | 0000H (Fixation)                                 | Harmonic 3th content rate<br>Maximum current B     |
| 04            | 30440        | Harmonic 4th content rate<br>Maximum current R     | Harmonic 4th content rate<br>Maximum current R     | Harmonic 4th content rate<br>Maximum current     | Harmonic 4th content rate<br>Maximum current R     |
| 04            | 30441        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 4th content rate<br>Maximum current Y     |
| 04            | 30442        | Harmonic 4th content rate<br>Maximum current B     | Harmonic 4th content rate<br>Maximum current B     | 0000H (Fixation)                                 | Harmonic 4th content rate<br>Maximum current B     |
| 04            | 30443        | Harmonic 5th content rate<br>Maximum current R     | Harmonic 5th content rate<br>Maximum current R     | Harmonic 5th content rate<br>Maximum current     | Harmonic 5th content rate<br>Maximum current R     |
| 04            | 30444        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 5th content rate<br>Maximum current Y     |
| 04            | 30445        | Harmonic 5th content rate<br>Maximum current B     | Harmonic 5th content rate<br>Maximum current B     | 0000H (Fixation)                                 | Harmonic 5th content rate<br>Maximum current B     |

Data-address list (12)

| Function code | Data address | Model                                              |                                                    |                                                  |                                                    |
|---------------|--------------|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------|----------------------------------------------------|
|               |              | 3-phase 3-wire                                     | Single-phase 3-wire                                | Single-phase                                     | 3-phase 4-wire<br>3-phase 3-wire 2VT3CT            |
| 04            | 30446        | Harmonic 7th content rate<br>Maximum current R     | Harmonic 7th content rate<br>Maximum current R     | Harmonic 7th content rate<br>Maximum current     | Harmonic 7th content rate<br>Maximum current R     |
| 04            | 30447        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 7th content rate<br>Maximum current Y     |
| 04            | 30448        | Harmonic 7th content rate<br>Maximum current B     | Harmonic 7th content rate<br>Maximum current B     | 0000H (Fixation)                                 | Harmonic 7th content rate<br>Maximum current B     |
| 04            | 30449        | Harmonic 9th content rate<br>Maximum current R     | Harmonic 9th content rate<br>Maximum current R     | Harmonic 9th content rate<br>Maximum current     | Harmonic 9th content rate<br>Maximum current R     |
| 04            | 30450        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 9th content rate<br>Maximum current Y     |
| 04            | 30451        | Harmonic 9th content rate<br>Maximum current B     | Harmonic 9th content rate<br>Maximum current B     | 0000H (Fixation)                                 | Harmonic 9th content rate<br>Maximum current B     |
| 04            | 30452        | Harmonic 11th content<br>rate<br>Maximum current R | Harmonic 11th content<br>rate<br>Maximum current R | Harmonic 11th content<br>rate<br>Maximum current | Harmonic 11th content<br>rate<br>Maximum current R |
| 04            | 30453        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 11th content<br>rate<br>Maximum current Y |
| 04            | 30454        | Harmonic 11th content<br>rate<br>Maximum current B | Harmonic 11th content<br>rate<br>Maximum current B | 0000H (Fixation)                                 | Harmonic 11th content<br>rate<br>Maximum current B |
| 04            | 30455        | Harmonic 13th content<br>rate<br>Maximum current R | Harmonic 13th content<br>rate<br>Maximum current R | Harmonic 13th content<br>rate Maximum current    | Harmonic 13th content<br>rate<br>Maximum current R |
| 04            | 30456        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 13th content<br>rate<br>Maximum current Y |
| 04            | 30457        | Harmonic 13th content<br>rate<br>Maximum current B | Harmonic 13th content<br>rate<br>Maximum current B | 0000H (Fixation)                                 | Harmonic 13th content<br>rate<br>Maximum current B |
| 04            | 30458        | Harmonic 15th content<br>rate<br>Maximum current R | Harmonic 15th content<br>rate<br>Maximum current R | Harmonic 15th content<br>rate Maximum current    | Harmonic 15th content<br>rate<br>Maximum current R |
| 04            | 30459        | 0000H (Fixation)                                   | 0000H (Fixation)                                   | 0000H (Fixation)                                 | Harmonic 15th content<br>rate<br>Maximum current Y |
| 04            | 30460        | Harmonic 15th content<br>rate<br>Maximum current B | Harmonic 15th content<br>rate<br>Maximum current B | 0000H (Fixation)                                 | Harmonic 15th content<br>rate<br>Maximum current B |

## (2) Response

If measurement value requirements are performed normally, the following response will be returned from this product side.

Example) Data address : 30001, Number of data : 29 (3-phase 3-wire)

|                                                                   |                                                                  |                                                                 |                                                                |                               |    |    |    |    |
|-------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------|-------------------------------|----|----|----|----|
| 1                                                                 | 2                                                                | 3                                                               | 4                                                              | 5                             | 6  | 7  | 8  | 9  |
| Address                                                           | Function code                                                    | Answer byte count                                               | 00                                                             | 00                            | 00 | 00 | 00 | 00 |
| 10                                                                | 11                                                               | 12                                                              | 13                                                             | 14                            | 15 | 16 | 17 |    |
| R line voltage<br>VRY                                             | Y line voltage<br>VYB                                            | B line voltage<br>VBR                                           | R phase current<br>AR                                          |                               |    |    |    |    |
| 18                                                                | 19                                                               | 20                                                              | 21                                                             | 22                            | 23 | 24 | 25 |    |
| Y phase current<br>AY                                             | B phase current<br>AB                                            | 00                                                              | 00                                                             | R phase demand current<br>DAR |    |    |    |    |
| 26                                                                | 27                                                               | 28                                                              | 29                                                             | 30                            | 31 | 32 | 33 |    |
| Y phase demand current<br>DAY                                     | B phase demand current<br>DAB                                    | 00                                                              | 00                                                             | Active power<br>W             |    |    |    |    |
| 34                                                                | 35                                                               | 36                                                              | 37                                                             | 38                            | 39 | 40 | 41 |    |
| Demand power<br>DW                                                | Watt-hour<br>(Power receiving)<br>Wh High                        | Watt-hour<br>(Power receiving)<br>Wh Low                        | Watt-hour<br>(Power transmission)<br>-Wh High                  |                               |    |    |    |    |
| 42                                                                | 43                                                               | 44                                                              | 45                                                             | 46                            | 47 | 48 | 49 |    |
| Watt-hour<br>(Power transmission)<br>-Wh Low                      | Reactive power<br>var                                            | Reactive power<br>(Power receiving, LAG)<br>varh (LAG) High     | Reactive power<br>(Power receiving, LAG)<br>varh (LAG) Low     |                               |    |    |    |    |
| 50                                                                | 51                                                               | 52                                                              | 53                                                             | 54                            | 55 | 56 | 57 |    |
| Reactive power<br>(Power receiving, LEAD)<br>varh (LEAD) high     | Reactive power<br>(Power receiving, LEAD)<br>varh (LEAD) Low     | Reactive power<br>(Power transmission, LAG)<br>-varh (LAG) High | Reactive power<br>(Power transmission, LAG)<br>-varh (LAG) Low |                               |    |    |    |    |
| 58                                                                | 59                                                               | 60                                                              | 61                                                             | 62                            | 63 |    |    |    |
| Reactive power<br>(Power transmission, LEAD)<br>-varh (LEAD) High | Reactive power<br>(Power transmission, LEAD)<br>-varh (LEAD) Low | CRC                                                             |                                                                |                               |    |    |    |    |

## Transmission scaling

| Item                                                                                                                                                                                                     |                                           | Input                                                                       |                               |                          | Communication data <sup>(14)</sup>     | Intrinsic error |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------|-------------------------------|--------------------------|----------------------------------------|-----------------|
| Voltage,<br>Minimum voltage,<br>Maximum voltage                                                                                                                                                          | 3 $\phi$ 3W<br>1 $\phi$ 2W<br>3 $\phi$ 4W | AC0~150V, AC0~300V, AC0~600V (Line)                                         |                               |                          | 0000H~2710H (0~10000)                  | $\pm 0.5\%$     |
|                                                                                                                                                                                                          |                                           | AC0~150/ $\sqrt{3}$ V, AC0~300/ $\sqrt{3}$ V, AC0~600/ $\sqrt{3}$ V (Phase) |                               |                          | 0000H~168EH (0~ 5774)                  |                 |
|                                                                                                                                                                                                          | 1 $\phi$ 3W <sup>(15)</sup>               | AC0~300V (Line)                                                             |                               |                          | 0000H~2710H (0~10000)                  |                 |
|                                                                                                                                                                                                          |                                           | AC0~150V (Phase)                                                            | Phase-voltage full-scale 150V | 0000H~2710H (0~10000)    |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | Phase-voltage full-scale 300V | 0000H~1388H (0~ 5000)    |                                        |                 |
| Current, Minimum current,<br>Maximum current,<br>Minimum demand current,<br>Maximum demand current,<br>Demand current                                                                                    |                                           | Rating 5A                                                                   | AC0~5A                        |                          | 0000H~2710H (0~10000)                  | $\pm 0.5\%$     |
|                                                                                                                                                                                                          |                                           | Rating 1A                                                                   | AC0~1A                        |                          |                                        |                 |
| Active power,<br>Minimum active power,<br>Maximum active power,<br>Maximum demand power,<br>Minimum demand power,<br>Demand power                                                                        | 3 $\phi$ 3W<br>1 $\phi$ 3W<br>3 $\phi$ 4W | Rating 5A                                                                   | 110V                          | -1kW~0~+1kW              | D8F0H~0000H~2710H<br>(-10000~0~+10000) | $\pm 0.5\%$     |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | -2kW~0~+2kW              |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 440V                          | -4kW~0~+4kW              |                                        |                 |
|                                                                                                                                                                                                          |                                           | Rating 1A                                                                   | 110V                          | -200W~0~+200W            |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | -400W~0~+400W            |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 440V                          | -800W~0~+800W            |                                        |                 |
|                                                                                                                                                                                                          | 1 $\phi$ 2W                               | Rating 5A                                                                   | 110V                          | -500W~0~+500W            | EC78H~0000H~1388H<br>(-5000~0~+5000)   | $\pm 0.5\%$     |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | -1kW~0~+1kW              |                                        |                 |
|                                                                                                                                                                                                          |                                           | Rating 1A                                                                   | 110V                          | -100W~0~+100W            |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | -200W~0~+200W            |                                        |                 |
| Reactive power,<br>Minimum reactive power,<br>Maximum reactive power                                                                                                                                     | 3 $\phi$ 3W<br>1 $\phi$ 3W<br>3 $\phi$ 4W | Rating 5A                                                                   | 110V                          | LEAD 1kvar~0~LAG 1kvar   | D8F0H~0000H~2710H<br>(-10000~0~+10000) | $\pm 0.5\%$     |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | LEAD 2kvar~0~LAG 2kvar   |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 440V                          | LEAD 4kvar~0~LAG 4kvar   |                                        |                 |
|                                                                                                                                                                                                          |                                           | Rating 1A                                                                   | 110V                          | LEAD 200var~0~LAG 200var |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | LEAD 400var~0~LAG 400var |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 440V                          | LEAD 800var~0~LAG 800var |                                        |                 |
|                                                                                                                                                                                                          | 1 $\phi$ 2W                               | Rating 5A                                                                   | 110V                          | LEAD 500var~0~LAG 500var | EC78H~0000H~1388H<br>(-5000~0~+5000)   | $\pm 0.5\%$     |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | LEAD 1kvar~0~LAG 1kvar   |                                        |                 |
|                                                                                                                                                                                                          |                                           | Rating 1A                                                                   | 110V                          | LEAD 100var~0~LAG 100var |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | LEAD 200var~0~LAG 200var |                                        |                 |
| Apparent power,<br>Minimum apparent power,<br>Maximum apparent power                                                                                                                                     |                                           | Rating 5A                                                                   | 110V                          | 0~1kVA                   | 0000H~2710H (0~10000)                  | $\pm 0.5\%$     |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | 0~2kVA                   |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 440V                          | 0~4kVA                   |                                        |                 |
|                                                                                                                                                                                                          |                                           | Rating 1A                                                                   | 110V                          | 0~200VA                  |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 220V                          | 0~400VA                  |                                        |                 |
|                                                                                                                                                                                                          |                                           |                                                                             | 440V                          | 0~800VA                  |                                        |                 |
| Power factor,<br>Minimum power factor,<br>Maximum power factor                                                                                                                                           |                                           | LEAD 0~1~LAG 0                                                              |                               |                          | 0000H~1388H~2710H<br>(0~5000~10000)    | $\pm 2.0\%$     |
|                                                                                                                                                                                                          |                                           | LEAD 0.5~1~LAG 0.5                                                          |                               |                          | 09C4H~1388H~1D4CH<br>(2500~5000~7500)  |                 |
| Frequency,<br>Minimum frequency,<br>Maximum frequency                                                                                                                                                    |                                           | 45~55Hz                                                                     |                               |                          | 1194H~157CH (4500~5500)                | $\pm 0.5\%$     |
|                                                                                                                                                                                                          |                                           | 55~65Hz                                                                     |                               |                          | 157CH~1964H (5500~6500)                |                 |
|                                                                                                                                                                                                          |                                           | 45~65Hz                                                                     |                               |                          | 1194H~1964H (4500~6500)                |                 |
| Current leakage,<br>Maximum current leakage                                                                                                                                                              |                                           | AC0~AC0.8A                                                                  |                               |                          | 0000H~2710H (0~10000)                  | $\pm 10\%$      |
| Distortion factor,<br>Maximum distortion factor                                                                                                                                                          |                                           | Voltage                                                                     | 0.0%~20.0%                    |                          | 0000H~00C8H (0~200)                    | $\pm 2.5\%$     |
|                                                                                                                                                                                                          |                                           | Current                                                                     | 0.0~100.0%                    |                          | 0000H~03E8H (0~1000)                   | $\pm 2.5\%$     |
| Harmonic content rate<br>(Fundamental wave, nth),<br>Harmonic maximum content<br>(Fundamental wave, nth),<br>Harmonic 5th conversion content<br>rate,<br>Harmonic 5th conversion maximum<br>content rate |                                           | voltage                                                                     | 0.0%~20.0%                    |                          | 0000H~00C8H (0~200)                    | $\pm 2.5\%$     |
|                                                                                                                                                                                                          |                                           | Current                                                                     | 0.0%~100.0%                   |                          | 0000H~03E8H (0~1000)                   | $\pm 2.5\%$     |



| Item                                                                                                                                                                                                                      | Input     |                                  |                                                                                | Communication data <sup>(14)</sup>                | Intrinsic error |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------|-----------------|
| Harmonic effective value<br>(Fundamental wave, nth),<br>Harmonic maximum effective value<br>(Fundamental wave, nth),<br>Harmonic 5th conversion<br>effective value,<br>Harmonic 5th conversion maximum<br>effective value | Voltage   | 3 $\phi$ 3W<br>1 $\phi$ 2W       | AC0~150V, AC0~300V                                                             | 0000H~2710H (0~10000)                             | $\pm 1.5\%$     |
|                                                                                                                                                                                                                           |           | 3 $\phi$ 4W                      | AC0~150/ $\sqrt{3}$ V, AC0~300/ $\sqrt{3}$ V,<br>AC0~600/ $\sqrt{3}$ V (Phase) | 0000H~168EH (0~ 5774)                             |                 |
|                                                                                                                                                                                                                           |           | 1 $\phi$ 3W<br>( <sup>15</sup> ) | AC0~150V<br>(Phase)                                                            | Phase-voltage<br>full-scale 150V                  |                 |
|                                                                                                                                                                                                                           |           |                                  |                                                                                | Phase-voltage<br>full-scale 300V                  |                 |
|                                                                                                                                                                                                                           | Current   | Rating 5A                        | AC0~5A                                                                         | 0000H~2710H (0~10000)                             | $\pm 1.5\%$     |
|                                                                                                                                                                                                                           |           | Rating 1A                        | AC0~1A                                                                         |                                                   |                 |
| Watt-hour (Power receiving /<br>Power transmission)                                                                                                                                                                       | 0~99999.9 |                                  |                                                                                | 00000000H~000F423FH<br>(0~999999) <sup>(16)</sup> | $\pm 2.0\%$     |
| var-hour (Power receiving /<br>Power transmission, LAG/LEAD)                                                                                                                                                              | 0~99999.9 |                                  |                                                                                | 00000000H~000F423FH<br>(0~999999) <sup>(16)</sup> | $\pm 2.5\%$     |

Note<sup>(14)</sup> The range of communication data, Data at the case of low input.

- Current : 120% full-scale, Less than 0.5% of secondary rated current is "0000H" (0).
- Voltage : 101% full-scale, Less than 0.5% of secondary rated voltage is "0000H" (0).
- Active power, Reactive power : 120% full-scale, Less than 0.5% of secondary rated power and secondary reactive power is "0000H" (0).
- Power factor : Less than 20% of voltage range and less than 2% of current range are "1388H" (5000).
- Frequency :  $\pm 1\%$  of measuring range. 45~55Hz : 44.9~55.1Hz "118AH~1586H" (4490~5510)  
55~65Hz : 54.9~65.1Hz "1572H~196EH" (5490~6510)  
45~65Hz : 44.8~65.2Hz "1180H~1978H" (4480~6520)  
Less than 20% of voltage range is "0000H".
- Active power, Reactive power : Minus data expresses with two's complement.  
(-10000~0~10000 : D8F0H~0000H~2710H)
- Current leakage : 120% (12000) full-scale, Out of range : "FFFFH" (-1)

Note<sup>(15)</sup> The default setting of phase-voltage full-scale setting is 300V.

Note<sup>(16)</sup> It is set to kWh (kvarh) by hanging multiplying factor data on watt-hour data.

Example) Watt-hour(kWh) = Watt-hour date  $\times$  Multiplying factor data = 123.4 $\times$ 100 = 12340kWh

## 7.8 Maximum, minimum reset request

It is used for performing the maximum minimum reset to this product. It will be broadcast if 00H are designated as an address. A function code designates 06H.

### (1) The maximum minimum reset request (Query)

In case it performs the maximum minimum reset request, it is necessary to transmit the write-in data containing a data address and the factor to reset. If a data address is transmitted, please subtract 40001 from the address of a data-address list.

| 1       | 2             | 3            | 4          | 5 | 6 | 7     | 8 |
|---------|---------------|--------------|------------|---|---|-------|---|
| Address | Function code | Data address | Write data |   |   | CRC   |   |
| 01H     | 06H           | 012CH        | 001FH      |   |   | 0837H |   |

### Data address list

| Function code | Data address | Model                  |                     |                     |                |
|---------------|--------------|------------------------|---------------------|---------------------|----------------|
|               |              | 3-phase 3-wire         | Single-phase 3-wire | Single-phase 2-wire | 3-phase 4-wire |
| 06H           | 40301        | Maximum, minimum reset |                     |                     |                |

### ● Maximum minimum reset, Bit allocation of write data <sup>(17)</sup>

| B15 | B14 | B13 | B12 | B11 | B10 | B9 | B8 | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 |
|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|
| —   | —   | —   | —   | ⑫   | ⑪   | ⑩  | ⑨  | ⑧  | ⑦  | ⑥  | ⑤  | ④  | ③  | ②  | ①  |

| No. | Contents of output                                | No. | Contents of output                                |
|-----|---------------------------------------------------|-----|---------------------------------------------------|
| ①   | Voltage (Maximum, Minimum)                        | ⑦   | Frequency (Maximum, Minimum)                      |
| ②   | Current (Maximum, Minimum)                        | ⑧   | Current leakage (Maximum) <sup>(19)</sup>         |
| ③   | Active power (Maximum, Minimum)                   | ⑨   | Demand current (Maximum, Minimum)                 |
| ④   | Reactive power (Maximum, Minimum)                 | ⑩   | Demand power (Maximum, Minimum)                   |
| ⑤   | Apparent power (Maximum, Minimum) <sup>(18)</sup> | ⑪   | Harmonic data (Maximum) (Voltage) <sup>(20)</sup> |
| ⑥   | Power factor (Maximum, Minimum)                   | ⑫   | Harmonic data (Maximum) (Current) <sup>(20)</sup> |

Note<sup>(17)</sup> Except an applicable bit and the measurement factor that doesn't exist by the model, data is not reset as for ON (1).

Note<sup>(18)</sup> Only with 3-phase 4-wire specification.

Note<sup>(19)</sup> Only with leakage measurement option

Note<sup>(20)</sup> Harmonic data : Fundamental-wave effective value, Distortion factor, Harmonic nth effective value ,  
Harmonic nth content rate, Harmonic 5th conversion effective value,  
Harmonic 5th conversion content rate

### (2) Response

If maximum minimum reset request is performed normally, the following response will be returned from this product side. In case broadcast (address 00H) is designated, a response does not occur.

| 1       | 2             | 3            | 4           | 5 | 6 | 7   | 8 |
|---------|---------------|--------------|-------------|---|---|-----|---|
| Address | Function code | Data address | Change data |   |   | CRC |   |

The same data as the write data of the maximum and the minimum reset factor is returned to change data.

## 7.9 Loopback test

A loopback test is the function that tests communication of a master and a slave (SQLC). Arbitrary data is answered as it is. There is no broadcast. A function code designates 08H.

### (1) The request of loopback (Query)

In case it performs a loopback test, it is necessary to transmit the data used for a diagnostic code and diagnosis. A diagnostic code should designate 0000H. A diagnostic data designates the selected value to 0000H~FFFFH.

| 1       | 2             | 3               | 4 | 5               | 6 | 7     | 8 |
|---------|---------------|-----------------|---|-----------------|---|-------|---|
| Address | Function code | Diagnostic code |   | Diagnostic data |   | CRC   |   |
| 01H     | 08H           | 0000H           |   | 04D2H           |   | 6296H |   |

### (2) Response

If loopback request is performed normally, the following response will be returned from this product side.

| 1       | 2             | 3               | 4 | 5               | 6 | 7   | 8 |
|---------|---------------|-----------------|---|-----------------|---|-----|---|
| Address | Function code | Diagnostic code |   | Diagnostic data |   | CRC |   |

The same data as the master transmitted by (1) is returned to diagnostic code and diagnostic data.

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