

**S.A DE CONSTRUCCIONES
INDUSTRIALES**



DIN-rail Type Power Meter

Operation Manual

This manual is applied to the following models:

- TCIL2T-TCP
- TCIL2T
- TCIL2-LP-TCP
- TCIL2-LP
- TCIL2-TCP
- TCIL2

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APPENDIX 1 MODBUS-RTU COMMUNICATION ADDRESS LIST 35

EU Regulation 2023/1542 concerning batteries and waste batteries requires that, from 18 February 2027, all products placed on the market incorporating portable batteries shall ensure that those batteries are readily removable and replaceable by the end-user at any time during the lifetime of the product. This requirement does not apply to this equipment (TCIL2) as it falls within the exceptions set out in Article 11(3) of Regulation (EU) 2023/1542, as clarified in Commission Notice C/2025/214, since it is a product whose main function is to collect and supply data and the purpose of the battery is to maintain the integrity of that data.

1. COMPLIANCE WITH STANDARDS

IEC 62053-22:2003 Electricity metering equipment (a.c.) - Particular Requirements - Part 22: Static meters for active energy (classes 0,2 S and 0,5 S)

IEC62053-23:2003 Electricity metering equipment (a.c.)-Particular requirements-Part 23: Static meters for reactive energy (classes 2 and 3)

2. OVERVIEW

TCIL2 can measure general electrical parameters, demand, energy, tariff energy and harmonics analysis. It is also equipped with curve record function and digital communication function. The TCIL2T, TCIL2-LP, TCIL2T-TCP and TCIL2-LP-TCP versions have memory. All versions have time discrimination of up to six periods in imported active energy.

3. FUNCTION LIST

The following table lists the measurable parameters, including the related variables obtained through the calculation on basic electrical variables.

Name	Symbol	Instantaneous value	Extreme value	Demand	Accumulated value	Unit
Phase voltage	U1/U2/U3	●	●	-	-	[V,kV]
Line voltage	U12/U23/U31	●	●	-	-	[V,kV]
Current	I1/I2/I3	●	●	●	-	[A,kA]
Frequency	F	●	●	-	-	[Hz]
Phase active power	P1/P2/P3	●	●	-	-	[kW,MW]
Total active power	P	●	●	●	-	[kW,MW]
Phase reactive power	Q1/Q2/Q3	●	●	-	-	[kvar,Mvar]
Total reactive power	Q	●	●	●	-	[kvar,Mvar]

Phase apparent power	S1/S2/S3	●	●	-	-	[kVA,MVA]
Total apparent power	S	●	●	●	-	[kVA,MVA]
Power factor	PF1/PF2/PF3	●	-	-	-	-
Total power factor	PF	●	●	-	-	-
Import/export active energy	EP+/EP-	-	-	-	●	[kWh, MWh]
Import/export reactive energy	EQ+/EQ-	-	-	-	●	[kvarh, Mvarh]
Apparent energy	EVA	-	-	-	●	[kVAh, MVAh]
Four-quadrant reactive energy	EQ1/2/3/4	-	-	-	●	[kvarh, Mvarh]
Trip energy	Tr	-	-	-	●	[kWh,MWh]
Tariff energy	ETOU	-	-	-	●	[kWh,MWh]
Total voltage THD	THDV	●	-	-	-	[%]
Total current THD	THDI	●	-	-	-	[%]
Voltage sub-harmonic content	HR-U (2~31rd)	●	-	-	-	[%]
Current sub-harmonic content	HR-I (2~31rd)	●	-	-	-	[%]

Note: ● Yes, - No, ○ optional.

4. TECHNICAL SPECIFICATION

Items			
Accuracy	Voltage, current		0.2%
	Power, power factor		0.5%
	Frequency		±0.01Hz
	Active energy		IEC62053-22, class 0.5S
	Reactive energy		IEC62053-23, class 2
Display update cycle			1s
Input	Wiring mode		1P2W, 3P3W, 3P4W
	Voltage	Rated value	AC 3×230 /400 V
		Allowable overload	1.2x Un
		Consumption	≤0.5 VA
		Impedance	≥1.7 MΩ
	Current	Rated value	1 A or 5 A
		Allowable overload	Continuous: 1.2 x In
			Instantaneous: 10 x In/5s
		Consumption	≤0.1 VA
	Impedance	≤20 mΩ	
	Frequency		(45～65)Hz
Energy pulse output		Pulse width (80±20%) ms (max current 10mA; 24V DC)	
Communication			
RS485 interface		Modbus-RTU , 2-wire, baud rate up to 19200bps	
RJ45 interface		Modbus-TCP or BACNet	
Outline			
Protection degree		IP50（front）	
Dimension		100×76×65mm	
Working environment			
Working temperature		(-10～60)℃	
Storage temperature		(-25～70)℃	

Relative humidity	(5~95)% , no condensation
Insulation	IEC 61010-1

*Note: On TCIL2-LP-TCP, TCIL2T-TCP and TCIL2-TCP models the RJ45 port has the BACNet/IP protocol configurable by keypad and by software. On TCIL2-LP, TCIL2T and TCIL2 models it is the RS485 port that has the configurable BACNet protocol.

5. FUNCTIONS

5.1 Measurement

Real-time measuring of the following parameters:

- Voltage, current
- Active power, reactive power, apparent power
- Frequency, power factor
- Demand, maximum, minimum

5.2 Energy metering

- Bi-directional active energy
- Apparent energy
- Four-quadrant reactive energy
- Tariff energy measurement function

The daylight saving time setting is supported, and the summer time adjustment time is adjusted to 3 o'clock a.m. from 2 o'clock on the last Sunday in March. The end time is adjusted to 2 o'clock a.m. from 3 o'clock on the last Sunday in October.

Tariff energy

①Rate number

The tariff number is used to indicate the tariff at which the meter is running, and the rate number is indicated by T1~T6.

②Time period

The meter can divide the day into 8 periods at most. The time period setting must be continuous, that is, the end time of the first time period is the start time of the second time period.

③ Tariff table

The meter can be preset with different tariff tables with different contents, and different tariff can be executed in the time period specified by different tariff tables. The meter can preset up to 6 sets of tariff tables. When programming, the tariff table number is used to indicate which set of tariff tables implemented by the meter. The tariff table number is indicated by #1~#6, #1 corresponds to the first tariff table.

④ Holiday

Holidays include fixed holidays (22 days) and variable holidays (10 days), a total of 32 days. Fixed holidays generally refer to the same nationally prescribed holidays each year, such as January 1st, May 1st, etc., which can be set by the user. Variable holidays generally refer to holidays prescribed by different countries each year, which can be set by the user according to the actual holidays of each year.

⑤ Weekly tariff

Weekday is from Monday to Friday. Any set in the 6 sets of tariff table can be executed.

⑥ Seasons (winter / summer seasons or 12 seasons)

Winter summer seasons: Summer season is adjusted from 2:00 to 3:00 on the last Sunday in March, and the end time is adjusted from 3:00 to 2:00 on the last Sunday in October.

12 seasons: The meter can divide a year into 12 seasons at most, and the season setting must be continuous, that is, the end time of the first season is the start time of the second season.

⑦ Implementation of the tariff table

With the tariff table open, there are three execution modes:

The first type: summer and winter tariff. The year is divided into two seasons according to the switching time of summer time and winter time. The summer and winter time can set the tariff table for workdays, weekends, and holidays;

The second type: 12 season rates. According to the seasons divided by one year, set the tariff table for workdays, weekends, and holidays.

The third type: not tariffs are applied.

5.3 Energy quality

The meter measures voltage and current total harmonic distortion, voltage and current 2-31 harmonic content, voltage and current fundamental wave content, voltage and current harmonic content.

5.4 Demand record

The meter has six independent demand recording channels to measure and record max demand, present demand and previous demand of three phase current, total active power, total reactive power and total apparent power.

5.5 Extreme value record

The meter has an extreme value recording function and records the maximum and minimum values of voltage, current, active power, reactive power, apparent power, power factor, average voltage, and average current. It has interval extreme value record function. The interval time can be set. The interval extreme value indicates the maximum and minimum value of the energy during the set interval time.

5.6 Data record

The TCIL2-LP and TCIL2T-LP-TCP models support the energy data logging function, which stores energy data per minute (active energy imported, active energy exported, reactive energy imported, reactive energy exported and apparent energy) for one year. For more details, refer to chapter 9.3 Message Format, in the Read Logs from Files function (FC 0x14).

The TCIL2T, TCIL2T-TCP model can store up to 17 parameters (configurable) every 15 minutes for a maximum period of 3 years.

5.7 Digital outputs

The meter has two digital outputs with optical couplers and three working modes are available: energy pulse, off-limit alarm and remote control.

In energy pulse mode it will emit a pulse each time the energy corresponding to its

value is accumulated in the selected counter. The value can be set using the pulse constant (programmable).

In alarm mode, a variable, an alarm value, a delay and a hysteresis for deactivation are assigned. If the variable reaches the alarm value and holds it for the delay time, the alarm is activated until it falls below the value set by the hysteresis (this occurs if the pulse width register is 0, otherwise the alarm will emit a pulse equal to the configured pulse width).

In remote control mode the contact is activated or deactivated by a command through the communications port.

The delay can be configured either at the mode level or as a delay of $N * 100 \text{ ms}$.

Alarm items are as follow:

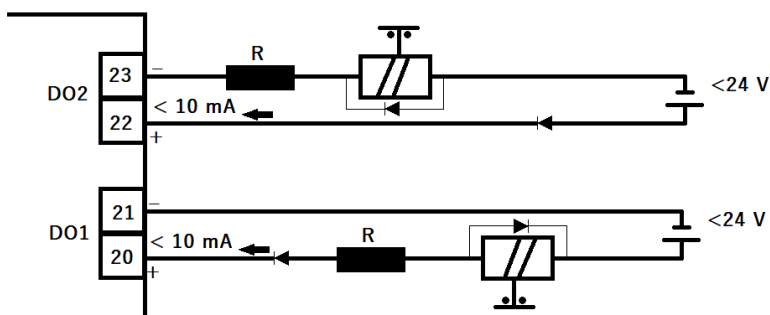
Table 5 Alarm items

Items	Unit	Description	Items	Unit	Description
UL1 >	1V	L1 phase voltage high alarm	IL3 <	1A	L3 phase current low alarm
UL1 <		L1 phase voltage low alarm	I >		Any phase current high alarm
UL2 >		L2 phase voltage high alarm	I <		Any phase current low alarm
UL2 <		L2 phase voltage low alarm	I.A >		Phase current average high alarm
UL3 >		L3 phase voltage high alarm	I.A <		Phase current average low alarm
UL3 <		L3 phase voltage low alarm	P >	1W	Total active power high alarm
Un >		Any phase voltage high alarm	P <		Total active power low alarm
Un <		Any phase voltage low alarm	Q >	1var	Total reactive power high

		alarm			alarm
UL12 >		L12 line voltage high alarm	Q <		Total reactive power low alarm
UL12 <		L12 line voltage low alarm	S >	1VA	Total apparent power high alarm
U23 >		L23 line voltage high alarm	S <		Total apparent power low alarm
U23 <		L23 line voltage low alarm	PF >	0.001	Total power factor high alarm
U31 >		L31 line voltage high alarm	PF <		Total power factor low alarm
U31 <		L31 line voltage low alarm	F >	0.01Hz	Grid frequency high alarm
UI >		Any line voltage high alarm	F <		Grid frequency low alarm
UI <		Any line voltage low alarm	Vunb >	1%	Voltage imbalance high alarm
Un.A >		Phase voltage average high alarm	Vunb <	1%	Voltage imbalance low alarm
Un.A <		Phase voltage average low alarm	Iunb >	1%	Current imbalance high alarm
UI.A >		Line voltage average high alarm	Iunb <	1%	Current imbalance low alarm
UI.A <		Line voltage average low alarm	THD_U >	1%	Voltage total harmonic distortion rate high alarm
IL1 >	1A	L1 phase current high alarm	THD_U <	1%	Voltage total harmonic distortion rate low alarm
IL1 <		L1 phase current low alarm	THD_I >	1%	Current total harmonic distortion rate high alarm
IL2 >		L2 phase current high	THD_I <	1%	Current total harmonic

		alarm			distortion rate low alarm
IL2 <		L2 phase current low alarm			
IL3 >		L3 phase current high alarm			

The connection of the digital outputs in alarm or remote mode is as follows (maximum current is 10 mA):



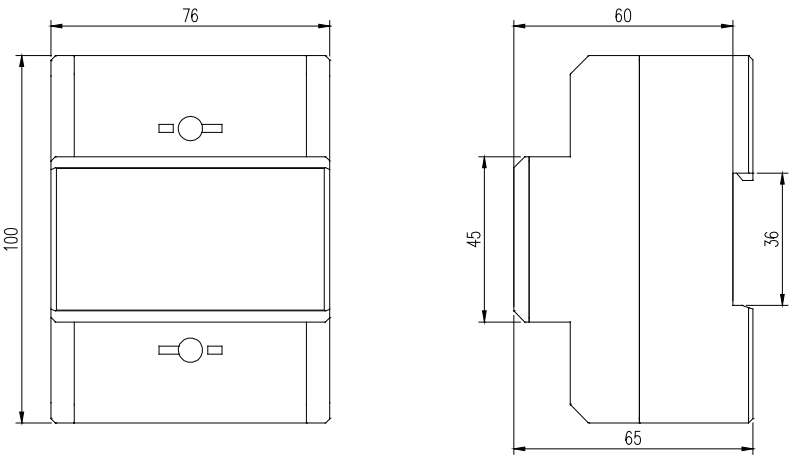
5.8 Communication

- RS485 interface is electrically isolated from the inside of the meter.
- RS485 communication can be carried out by PC machine to complete parameter setting and meter reading.

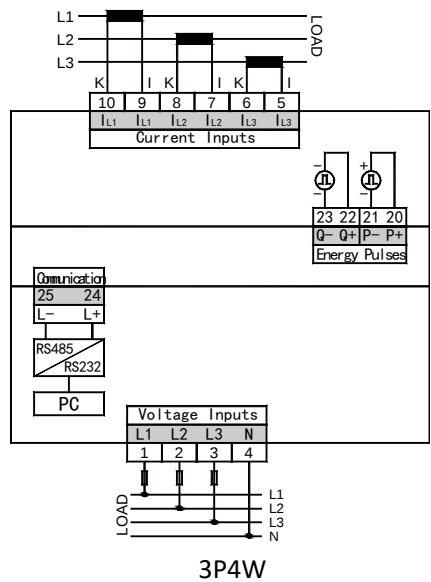
The meter has an isolated RJ45 port in the models TCIL2 - TCP, TCIL2 LP – TCP y TCIL2T - TCP

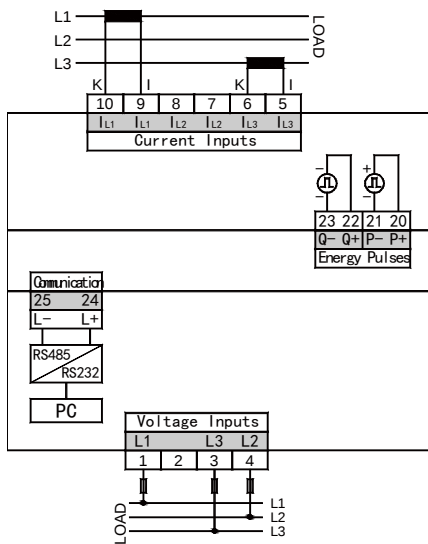
6. INSTALLATION

6.1 Dimension (mm)

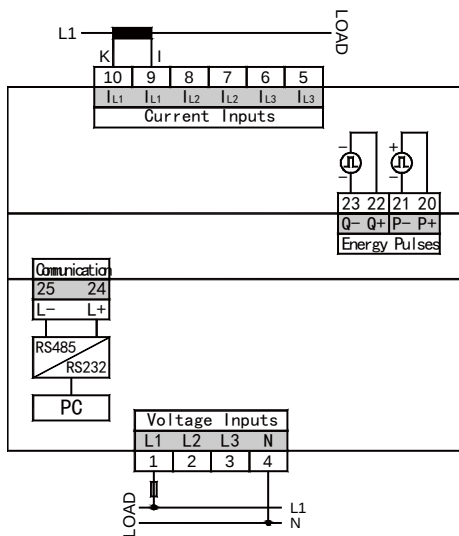


6.2 Wiring





3P3W



1P2W

Wiring instruction:

External wiring method must be the same with the inner wiring method of the meter. Otherwise, the measured data will be incorrect. (Specific setting methods can be found in section 8.1)

Voltage and current signals must be AC signals. Please do not connect DC signals to input terminals.

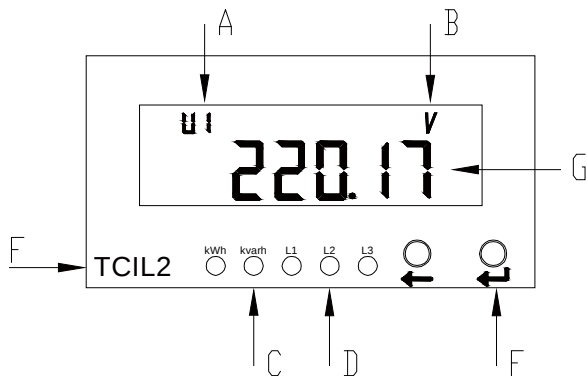
Voltage input: make sure the input voltage is not higher than the rated voltage of the meter.

Current input: make sure the input current is not higher than the rated current of the meter. Current connection must be done through current transformers. The accuracy of meter will depend on the accuracy of external CT. Please make sure the accuracy of external CT is equal to or better than that of meter. If there is more than one meter connected to the CT, please connect them in serial. Before removing the current input wires of the meters, make sure to cut off the first loop of CT or short connect its second loop. For your convenient maintenance, please adopt wiring terminal row.

Make sure voltage and current of three phases corresponding to each other, that means the phase sequence and direction are same. Otherwise, the measured values of power and energy will be incorrect.

7. OPERATION

7.1 Panel



- A: Measurement value type B: Unit C: Energy pulse indicator
D: Voltage phase indicator E: Operation button F: Model G: display

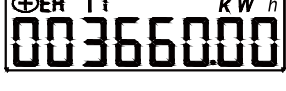
7.2 Display

TCIL2 can show voltage, current, power, power factor, frequency, energy and basic setting information.

Circular display at various measurement display interfaces can be realized by pressing operation buttons.

Energy display interface

Display interface	Description
	Total import active energy EP =16070 kWh
	Total export active energy EP- = 700 kWh

	Total import reactive energy EQ = 3500 kvarh
	Total export reactive energy EQ- = 1000 kvarh
	Trip energy 129500.51kWh
	First quadrant reactive energy 150kvarh
	Second quadrant reactive energy 260kvarh
	Third quadrant reactive energy 370kvarh
	Fourth quadrant reactive energy 490kvarh
	Tariff energy: [total] 16070kWh
	Tariff energy: [T1] 3660kWh
	Tariff energy: [T2] 6520kWh

	Tariff energy: [T3] 1270kWh
	Tariff energy: [T4] 4620kWh
	Tariff energy: [T5] 270kWh
	Tariff energy: [T6] 620kWh
	Current Tariff: [T2]

Display interface in single phase wiring mode:

Display interface	Description
	Voltage U = 220.06 V
	Current I = 50.016 A
	Total active power P = 45.068 kW
	Total reactive power Q = 60.068 kvar

S kVA 90068	Total apparent power $S = 90.068 \text{ kVA}$
PF 08669	Total power factor $PF = 0.8669$
F 50000	Grid frequency $F = 50 \text{ Hz}$

Display interfaces in 3P4W wiring mode

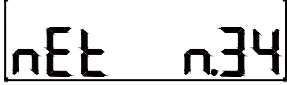
Display interface	Description
U1 V 22006	L1 voltage $V1 = 220.06 \text{ V}$
U2 V 22021	L2 voltage $V2 = 220.21 \text{ V}$
U3 V 22030	L3 voltage $V3 = 220.30 \text{ V}$
U12 V 38046	L1L2 voltage $U12 = 380.46 \text{ V}$
U23 V 38057	L2L3 voltage $U23 = 380.57 \text{ V}$
U31 V 38068	L3L1 voltage $U31 = 380.68 \text{ V}$

	L1 current I1 = 50.016A
	L2 current I2 = 50.027A
	L3 current I3 = 50.083A
	Grid frequency F = 50.00 Hz
	L1 active power P1 = 15.016kW
	L2 active power P2 = 15.021kW
	L3 active power P3 = 15.030kW
	Total active power P = 445.068kW
	L1 reactive power Q1 = 20.016 kvar
	L2 reactive power Q2 = 20.021kvar

Q3 k VAR 20030	L3 reactive power Q3 = 20.030 kvar
Q k VAR 60068	Total reactive power Q = 60.068 kvar
S1 k VA 30016	L1 apparent power S1 = 30.016 kVA
S2 k VA 30021	L2 apparent power S2 = 30.021 kVA
S3 k VA 30030	L3 apparent power S3 = 30.030 kVA
S k VA 90068	Total apparent power S = 90.068 kVA
PF 1 08666	L1 power factor PF1 = 0.8666
PF 2 08667	L2 power factor PF2 = 0.8667
PF 3 08668	L3 power factor PF3 = 0.8668
PF 08669	Total power factor PF = 0.8669

Basic parameter display interface

To enter the equipment in configuration mode, press the 2 buttons on the display at the same time. Then, enter the equipment code (0001 by default).

Display interface	Description
	Communication address: 3
	Baud rate: 9600bps
	Data format: n.8.1
	Wiring mode: three phase four wire
	PT ratio: 100
	CT ratio: 20

8. SETTING

There are two operation buttons on the meter. **"Setting button"** and **"Confirming button"**, The respective functions are as follows.

"Setting button"----- ←

Clicking this button in display mode, it goes to the previous value or parameter.

In programming mode:

A: Switch between the same level menus. In first level menu (parameter selection), click this button to pass to the next parameter in circular mode.

B: Change numbers at the single digit. In second level menu (setting value), click this button to change the number from 0 to 9.

"Confirming button"----- ↵

Clicking this button in display mode, it goes to the next

value or parameter.

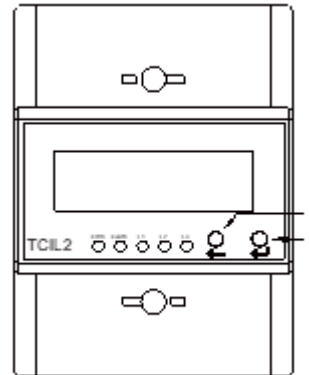
In programming mode:

A: Enter parameter setting interface

B: Switch between different digits and confirm operation. Click this button for once to move one bit left, and the number at that bit will flash. When it goes to the highest digit, click **"Confirming button"** again to save modified parameters and goes to upper level menu.

Enter programming mode

To access the programming mode, it is necessary to press and hold both buttons (configuration button and confirmation button) for 3 seconds until "*Code*" appears on the display. After this, press the confirmation button to access the password interface. At this point it is necessary to enter the access code, default is "0001" using both buttons to enter it.



Exit programming mode

In first level menu, click **"Setting button"** to switch to "SAVE". Click **"Confirming button"** and select "YES" to save modified data and exit programming menu; select "NO" to return to measurement display interface without saving modified data.

Number modification

"Setting button" is used to modify the value of a single digit. Click this button to change the number from 0 to 9. **"Confirming button"** is used to switch among the data digits of the value. Switching to which digit the value of the digit will flash. When switching to the highest digit, **"Confirming button"** again to save the setting parameters and return to the previous menu.

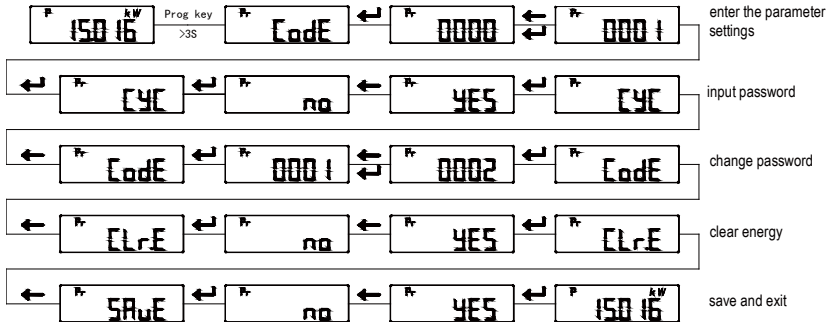
8.1 Menu structure

IS016	Code	0000	0001	
CYC	no	YES	Cycle display	
LIGH	0000	0060	Backlight time	
diSP	U	I	Boot display	
Code	0001	0002	Password	
CLrE	no	YES	Clear energy	
CLrD	no	YES	Clear demand	
CLrM	no	YES	Clear Max./Min.	
CLrT	no	YES	Clear time	
CLrR	no	YES	Clear record	
WtE	034	033	Wiring mode	
Pt1	000380	010000	Primary voltage	
Pt2	0380	0100	Secondary voltage	
Ct1	000050	000100	Primary current	
Ct2	0005	0001	Secondary current	
Addr	0001	0002	Slave address	
bAUD	4800	9600	Baud rate	
dRtR	081	EB1	Parity	
d1ModE	oFF	RLN	#1 Relay output mode	
d1t1NE	0000	0010	Pulse width	
d1t1tEN	UR H	UR L	Alarm item	
d1uRL	2200	2300	Alarm value	
d1HYS	0010	0005	Hysteresis value	
d1dELY	0030	0010	Delay time	
d2ModE	oFF	RLN	#2 Relay output mode	
d2t1NE	0000	0010	Pulse width	
d2t1tEN	UR H	UR L	Alarm item	
d2uRL	2200	2300	Alarm value	
d2HYS	0010	0005	Hysteresis value	
d2dELY	0030	0010	Delay time	
Prot	rtU	bRC	Protocol	
IP1	0010	0011	#1 IP address	
IP4	0088	0008	#4 IP address	
MS1	0255	0254	#1 Subnet mask	
MS4	0001	0002	#4 Subnet mask	
GRt1	0010	0011	#1 Default gateway	
GRt4	0000	0001	#4 Default gateway	
MAC1	0210	0211	#1 MAC address	
MAC6	0311	0312	#6 MAC address	
SAvE	no	YES	Save	

8.2 Parameter setting

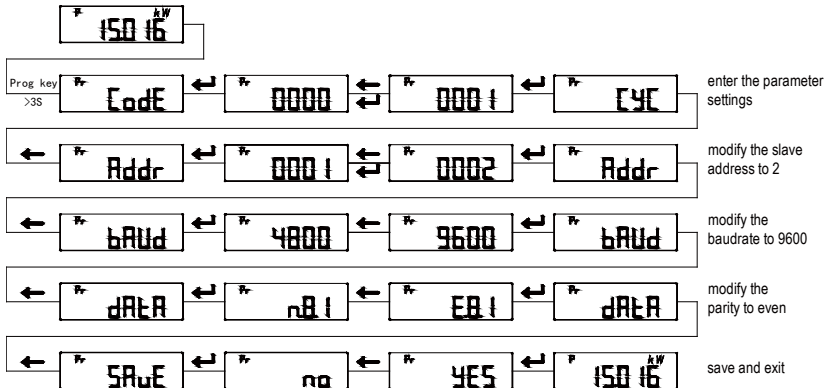
8.2.1 System parameter setting

Please check the following instruction to set circular display, change password to 0002 and clear energy data.



8.2.2 Communication parameter setting

Please check the following instruction to change communication address to 2, set baud rate to 9600, set check mode to E.8.1., and set communication protocol to BACNet.



8.3 Synchronization.

TCIL2 is synchronized through serial ports. See page 34.

9. MODBUS-RTU COMMUNICATION

9.1. Physical Layer

- 1) RS485 or RJ45 communication port, asynchronous half two-way pattern.
- 2) Speed 1200~38400bps, default as 19200 bps.
- 3) Bytes transmission format (N81, E81, O81, N82): default N81.

9.2. Communication protocol Modbus-RTU (same for ModBus-TCP)

Meter supports standard Modbus-RTU protocol and Modbus-TCP

Structure of Data Frame: Text Format.

Address code	Function code	Data code	Check code
1 byte	1 byte	N bytes	2 bytes

Address Code: Address range is 1~247 and other addresses are reserved. The address of each terminal must be unique, only the terminal addressed will respond to the query from the host.

Function Code: It shows which functions the terminal addressed to carry out. The following table lists the supported function codes, as well as their meanings and functions.

Code	Meaning
0x03/0x04	Read data register values
0x05	Write of digital output
0x06	Write a single register command
0x10	Write set register command
0x14	Read register data
0x0E	Reset data/set time data

Data Code: It contains the data for a specific function which the terminal carries or the collected data that the terminal responds the query from the host computer. The contents of these data may be numerical value, reference address or setting value. For example: The function code instructs the terminal to read a register, the data code indicates to start from which register and how much data to be read, while the contents sent back include data length and corresponding data.

Check Code: The error check code (CRC) takes up two bytes, including 16 bits binary value. The CRC value is calculated by the transmitting device, and then added to the data frame. The receiving devices calculate the CRC value again and compare with the value in CRC, if the two values are not equal, the CRC generates an error.

9.3. Message format

(1) Read data register value (function code 0x03/0x04)

Host request	Frame structure	Address code	Function code	Data code		CRC check code
				initial register address	number of register	
	Byte	1 byte	1 byte	2 bytes	2 bytes	2 bytes
	Data range	1~247	0x03/ 0x04		max 100	CRC16
Slave answer	Message example	<u>0x01</u>	<u>0x03</u>	<u>0x00 0x00</u>	<u>0x00 0x06</u>	<u>0xC5 0xC8</u>
	Frame structure	Address code	Function code	Data code		CRC check code
				Byte of register	Register value	
Slave answer	byte	1 byte	1 byte	1 byte	12 bytes	2 bytes
	message example	<u>0x01</u>	<u>0x03</u>	<u>0x0C</u>	<u>12-byte data</u>	<u>CRC16</u>

Note: The initial register address in host inquiry is the initial address of the data collected from power grid. The number of register indicates the length of the data. In the upper list the register address “0x00 0x00” indicates the initial address of float data of three-phase voltage, and the number of register “0x00 0x06” indicates

the length of the data is 6 (three float data occupies six registers). Please refer to appendix 1 MODBUS-RTU communication address information table.

Write of digital output (function 0x05)

host request	frame structure	address code	function code	data code		CRC
				initial relay address	relay action value	check code
	byte	1byte	1byte	2 bytes	2 bytes	2 bytes
	data range	1～247	0x05	0x0000～0x0003	0xFF00/0x0000	CRC16
	message example	<u>0x01</u>	<u>0x05</u>	<u>0x00 0x00</u>	<u>0xFF 0x00</u>	<u>0x8C</u> <u>0x3A</u>
slave response	frame structure	address code	function code	data code		CRC
				initial relay address	relay action value	check code
	byte	1 byte	1 byte	2 bytes	2 bytes	2 bytes
	message example	<u>0x01</u>	<u>0x05</u>	<u>0x00 0x00</u>	<u>0xFF 0x00</u>	<u>0x8C</u> <u>0x3A</u>

Remark: in host request, the relay action value “0xFF00” indicates the relay is closed, while “0x0000” indicates the relay is cut off. If you want to perform remotely control, please make sure the relay is working in “remote control” mode

(2) Write setting register value（function code 0x10）

Host request	Frame structure	Address code	Function code	Data code				CRC
				Initial relay address	Relay length	Relay byte	Written value	check code
	Byte	1 byte	1 byte	2 bytes	2 bytes	1 byte	2N bytes	2 bytes
	Data range	1～247	0x10	0x0802	0x0001	N		CRC16

	Message example	<u>0x01</u>	<u>0x10</u>	<u>0x08 0x02</u>	<u>0x00 0x01</u>	<u>0x02</u>	<u>0x01 0x00</u>	<u>0x2FE2</u>
Slave answer	Frame structure	Address code	Function code	Data code				CRC check code
				Initial relay address	Relay length			
	Byte	1 byte	1 byte	2 bytes	2 bytes			2 bytes
	Message example	<u>0x01</u>	<u>0x10</u>	<u>0x08 0x02</u>	<u>0x00 0x01</u>			<u>0xA269</u>

Note: Please strictly follow the Meter setting information address list in appendix when writing setting register. Do not change the reserved data. Written data should not exceed setting range. Wrong operation may cause meter damaged.

(3) Read File record (FC 0x14). Only for models TCIL2T, TCIL2 LP, TCIL2T – TCP and TCIL2 LP TCP.

Request

Function	1 byte	0x14
Byte counting	1 byte	0x07
Sub-request x, parameter type	1 byte	0x06
Sub-request x, file number	2 bytes	0x0004
Sub-request x, event log number	3 bytes	0x000000-0x01D330
Sub-request x, event log length	1 byte	N

Answer

Function code	1 byte	0x14
Response data length	1 byte	0x07~0xF5
Sub-request x, file length	1 byte	0x07~0xF5
Sub-request x, parameter type	1 byte	6
Sub-request x, event log data	N×2 bytes	...

Send sub-request file number, event log number and event log length description of message

Event log	File number	Event log number	Event log length
Data log	0x0004	0x000000~0x01D330: 0: latest piece of data log 1: second piece of data log from the latest piece of data log ... 119600: 119600th piece of data log from the latest piece of data log	1~38

Example for reading file

Request								
frame structure	address code	function code	data code					CRC
			byte counting	parameter type	file number	event log number	event log length	
byte	1 byte	1 byte	1 byte	1 byte	2 bytes	3 bytes	1 byte	2 bytes
data range	1~247	0x14	0x07	0x06	0x0004	0~119600	1~38	CRC
message	<u>0x01</u>	<u>0x14</u>	0x07	<u>0x06</u>	<u>0x0004</u>	<u>0x000000</u>	<u>0x26</u>	<u>0x893E</u>
Response								
frame structure	address code	function code	data code				CRC	
			response data length	response file length	parameter type	log data		
byte	1 byte	1 byte	1 byte	1 byte	1 byte	76 bytes	2 bytes	
message	<u>0x01</u>	<u>0x14</u>	<u>0x4E</u>	<u>0x4D</u>	<u>0x06</u>	log data	CRC	

Read electric data log format Meter supports 119600 pieces of data log at most. Each data log contains thirty electric parameter data. The interval of data log is set by

pressing buttons on meter or through communication. Please refer to communication address list.

Historical data frame contains thirty eight words. First three words are time data. The other thirty five words are electric parameter data. Electric parameter data is secondary value. Description of data frame is shown in following list.

Parameter	Format	Unit
Recording time	char	High byte:year low byte:month
Recording time	char	High byte:day low byte:hour
Recording time	char	High byte:minute low byte:second
Recording time	char	High byte:week low byte:--
Data1	float	According to Register 2300
Data2	float	According to Register 2301
Data3	float	According to Register 2302
Data4	float	According to Register 2303
Data5	float	According to Register 2304
Data6	float	According to Register 2305
Data7	float	According to Register 2306
Data8	float	According to Register 2307
Data9	float	According to Register 2308
Data10	float	According to Register 2309
Data11	float	According to Register 2310
Data12	float	According to Register 2311
Data13	float	According to Register 2312
Data14	float	According to Register 2313
Data15	float	According to Register 2314
Data16	float	According to Register 2315
Data17	float	According to Register 2316

Take reading the latest piece of log as example. Data type is hexadecimal.

Host request: 01 14 07 06 00 04 00 00 00 26 89 3E

Slave response: 01 14 4E 4D 06

14 08 12 09 11 00 02 00

y:m d:h m:s w

46 9C 4A 00 47 0A C2 00 43 95 FD 71 46 46 88 00 46 AB E8 00 46 AB E0 00

Data1 Data2 Data3 Data4 Data5 Data6

46 C6 70 00 3F 00 00 00 43 F9 F1 EC 40 2C CC CD 41 66 66 66 48 8C 5C 80

Data7 Data8 Data9 Data10 Data11 Data12

44 4F 80 00 45 28 20 00 45 28 20 00 48 C6 3F 3F 46 13 58 00 56 5C

Data13 Data14 Data15 Data16 Data17 CRC16

Datx according to IEEE754.

Data1(46 9C 4A 00): 20005, Data2(47 0A C2 00): 35522

(4) Reset data (function code 0x0E)

Request							
frame structure	address code	function code	data code				CRC
			initial relay address	Password	ID Reset	ID value	
byte	1 byte	1 byte	2 bytes	2 bytes	1 byte	1 bytes	2 byte
data range	1~247	0x0E	0xAACC	0x0001	N	0xFF	CRC16
message example	<u>0x01</u>	<u>0x0E</u>	<u>0xAA0xCC</u>	<u>0x00 x01</u>	<u>0x01</u>	<u>0xFF</u>	<u>0x760D</u>
Request							
frame structure	address code	function code	data code				CRC
			initial relay address	Password	ID Reset	ID value	
byte	1 byte	1 byte	2 bytes	2 bytes	1 byte	1 bytes	2 byte
data range	1~247	0x0E	0xAACC	0x0001	N	0xFF	CRC16
message example	<u>0x01</u>	<u>0x0E</u>	<u>0xAACC</u>	<u>0x00 x01</u>	<u>0x01</u>	<u>0xFF</u>	<u>0x760D</u>

NOTE: This code can reset date of Energy, Demand, MaxMin and Event.

Password: This value should equal User's Password;

Id Reset:

0x01: Clear Energy; 0x02: Clear Demand; 0x03: Clear MaxMin; 0x07: Event Registers.

Id value:

This value must be 0xff.

Synchronization:

Address	Function code	Data 1	Data 2	Data 3(hex)	Check code
Meter ID	0E	A3	00	Year month day hour minute second weekday 00	CRC

Weekday format: 00 Sunday, 01 Monday, 02 Tuesday, 03 Wednesday, 04 Thursday, 05 Friday, 06 Saturday.

For example, set date and time to 2022.05.21 8:30:07

Message: 00 0E A3 00 16 05 15 08 1E 07 06 00 +crc16. Weekday 06, Saturday.

For this command it can be used the address 00, broadcast command, because meters will not answer. When the address is not 0, only set the time for the meter with the same address.

Appendix 1 Modbus-RTU communication address list

Basic power

Address	Format	Data description	Unit	R/W
0000-0005		Reserved		
0006-0007	Float	Phase L1 voltage	V	R
0008-0009	Float	Phase L2 voltage	V	R
0010-0011	Float	Phase L3 voltage	V	R
0012-0013	Float	Line L12 voltage	V	R
0014-0015	Float	Line L23 voltage	V	R
0016-0017	Float	Line L31 voltage	V	R
0018-0019	Float	Phase L1 current	A	R
0020-0021	Float	Phase L2 current	A	R
0022-0023	Float	Phase L3 current	A	R
0024-0025	Float	In Neutral line current(3P4W)	A	R
0026-0027	Float	Phase L1 active power	kW	R
0028-0029	Float	Phase L2 active power	kW	R
0030-0031	Float	Phase L3 active power	kW	R
0032-0033	Float	Total active power	kW	R
0034-0035	Float	Phase L1 reactive power	kvar	R
0036-0037	Float	Phase L2 reactive power	kvar	R
0038-0039	Float	Phase L3 reactive power	kvar	R
0040-0041	Float	Total reactive power	kvar	R
0042-0043	Float	Phase L1 apparent power	kVA	R
0044-0045	Float	Phase L2 apparent power	kVA	R
0046-0047	Float	Phase L3 apparent power	kVA	R
0048-0049	Float	Total apparent power	kVA	R
0050-0051	Float	Phase L1 power factor		R
0052-0053	Float	Phase L2 power factor		R
0054-0055	Float	Phase L3 power factor		R

0056-0057	Float	Total power factor		R
0058-0059	Float	Grid frequency	Hz	R
0060-0061	Float	Average value of three phase voltages	V	R
0062-0063	Float	Average value of three line voltages	V	R
0064-0065	Float	Average value of three phase currents	A	R
0066-0067	Float	EP+	kWh	R
0068-0069	Float	EP-	kWh	R
0070-0071	Float	EQ+	kvarh	R
0072-0073	Float	EQ-	kvarh	R
0074-0075	Float	Apparent energy	kVAh	R
0076-0077	Float	Trip energy	KWh	R
0078-0079	Float	First-quadrant reactive energy EQL+	kvarh	R
0080-0081	Float	Second-quadrant reactive energy EQC+	kvarh	R
0082-0083	Float	Third-quadrant reactive energy EQL-	kvarh	R
0084-0085	Float	Four-quadrant reactive energy EQC-	kvarh	R
0086-0087	Float	Import active energy[total]	kWh	R
0088-0089	Float	Import active energy[T1]	kWh	R
0090-0091	Float	Import active energy[T2]	kWh	R
0092-0093	Float	Import active energy[T3]	kWh	R
0094-0095	Float	Import active energy[T4]	kWh	R
0096-0097	Float	Import active energy[T5]	kWh	R
0098-0099	Float	Import active energy[T6]	kWh	R
0100-0101	Float	Export active energy[total]	kWh	R
0102-0103	Float	Import active energy of this month[total]	kWh	R
0104-0105	Float	Import active energy of this month[T1]	kWh	R
0106-0107	Float	Import active energy of this month[T2]	kWh	R
0108-0109	Float	Import active energy of this month[T3]	kWh	R
0110-0111	Float	Import active energy of this month[T4]	kWh	R
0112-0113	Float	Import active energy of this month[T5]	kWh	R

0114-0115	Float	Import active energy of this month[T6]	kWh	R
0116-0117	Float	Export active energy of this month[total]	kWh	R
0118-0119	Float	Import active energy of last month[total]	kWh	R
0120-0121	Float	Import active energy of last month[T1]	kWh	R
0122-0123	Float	Import active energy of last month[T2]	kWh	R
0124-0125	Float	Import active energy of last month[T3]	kWh	R
0126-0127	Float	Import active energy of last month[T4]	kWh	R
0128-0129	Float	Import active energy of last month[T5]	kWh	R
0130-0131	Float	Import active energy of last month[T6]	kWh	R
0132-0133	Float	Export active energy of last month[total]	kWh	R
0134-0135	Float	Import active energy two month before[total]	kWh	R
0136-0137	Float	Import active energy two month before[T1]	kWh	R
0138-0139	Float	Import active energy two month before[T2]	kWh	R
0140-0141	Float	Import active energy two month before[T3]	kWh	R
0142-0143	Float	Import active energy two month before[T4]	kWh	R
0144-0145	Float	Import active energy two month before[T5]	kWh	R
0146-0147	Float	Import active energy two month before[T6]	kWh	R
0148-0149	Float	Export active energy two month before[total]	kWh	R
0150	Int	Relay status, Bit0:DO-1, Bit1:DO-2 0-disconnection; 1-connection;		R
0151-0165		RESERVED		R
0166-0167	Float	Interval phase L1 voltage maximum	V	R
0168-0169	Float	Interval phase L2 voltage maximum	V	R
0170-0171	Float	Interval phase L3 voltage maximum	V	R
0172-0173	Float	Interval line L12 voltage maximum	V	R
0174-0175	Float	Interval line L23 voltage maximum	V	R
0176-0177	Float	Interval line L31 voltage maximum	V	R
0178-0179	Float	Interval phase L1 current maximum	A	R
0180-0181	Float	Interval phase L2 current maximum	A	R
0182-0183	Float	Interval phase L3 current maximum	A	R

0184-0185	Float	Interval In current maximum	A	R
0186-0187	Float	Interval phase L1 active power maximum	kW	R
0188-0189	Float	Interval phase L2 active power maximum	kW	R
0190-0191	Float	Interval phase L3 active power maximum	kW	R
0192-0193	Float	Interval total active power maximum	kW	R
0194-0195	Float	Interval phase L1 reactive power maximum	kvar	R
0196-0197	Float	Interval phase L2 reactive power maximum	kvar	R
0198-0199	Float	Interval phase L3 reactive power maximum	kvar	R
0200-0201	Float	Interval total reactive power maximum	kvar	R
0202-0203	Float	Interval phase L1 apparent power maximum	kVA	R
0204-0205	Float	Interval phase L2 apparent power maximum	kVA	R
0206-0207	Float	Interval phase L3 apparent power maximum	kVA	R
0208-0209	Float	Interval total apparent power maximum	kVA	R
0210-0211	Float	Interval total power factor maximum		R
0212-0213	Float	Interval grid frequency maximum	Hz	R
0214-0215	Float	Interval three phase voltage average maximum	V	R
0216-0217	Float	Interval three line voltage average maximum	V	R
0218-0219	Float	Interval three phase current average maximum	A	R
0220-0221	Float	Interval phase L1 voltage minimum	A	R
0222-0223	Float	Interval phase L2 voltage minimum	A	R
0224-0225	Float	Interval phase L3 voltage minimum	A	R
0226-0227	Float	Interval line L12 voltage minimum	V	R
0228-0229	Float	Interval line L23 voltage minimum	V	R
0230-0231	Float	Interval line L31 voltage minimum	V	R
0232-0233	Float	Interval phase L1 current minimum	A	R
0234-0235	Float	Interval phase L2 current minimum	A	R
0236-0237	Float	Interval phase L3 current minimum	A	R
0238-0239	Float	Interval In current minimum	A	R
0240-0241	Float	Interval phase L1 active power minimum	kW	R

0242-0243	Float	Interval phase L2 active power minimum	kW	R
0244-0245	Float	Interval phase L3 active power minimum	kW	R
0246-0247	Float	Interval total active power minimum	kW	R
0248-0249	Float	Interval phase L1 reactive power minimum	kvar	R
0250-0251	Float	Interval phase L2 reactive power minimum	kvar	R
0252-0253	Float	Interval phase L3 reactive power minimum	kvar	R
0254-0255	Float	Interval total reactive power minimum	kvar	R
0256-0257	Float	Interval phase L1 apparent power minimum	kVA	R
0258-0259	Float	Interval phase L2 apparent power minimum	kVA	R
0260-0261	Float	Interval phase L3 apparent power minimum	kVA	R
0262-0263	Float	Interval total apparent power minimum	kVA	R
0264-0265	Float	Interval power factor minimum		R
0266-0267	Float	Interval grid frequency minimum	Hz	R
0268-0269	Float	Interval three phase voltage average minimum	V	R
0270-0271	Float	Interval three line voltage average minimum	V	R
0272-0273	Float	Interval three phase current average minimum	A	R
0274-0275	Float	Phase L1 voltage maximum	V	R
0276-0277	Float	Phase L2 voltage maximum	V	R
0278-0279	Float	Phase L3 voltage maximum	V	R
0280-0281	Float	Line L12 voltage maximum	V	R
0282-0283	Float	Line L23 voltage maximum	V	R
0284-0285	Float	Line L31 voltage maximum	V	R
0286-0287	Float	Phase L1 current maximum	A	R
0288-0289	Float	Phase L2 current maximum	A	R
0290-0291	Float	Phase L3 current maximum	A	R
0292-0293	Float	In current maximum	A	R
0294-0295	Float	Phase L1 active power maximum	kW	R
0296-0297	Float	Phase L2 active power maximum	kW	R
0298-0299	Float	Phase L3 active power maximum	kW	R

0300-0301	Float	Total active power maximum	kW	R
0302-0303	Float	Phase L1 reactive power maximum	kvar	R
0304-0305	Float	Phase L2 reactive power maximum	kvar	R
0306-0307	Float	Phase L3 reactive power maximum	kvar	R
0308-0309	Float	Total reactive power maximum	kvar	R
0310-0311	Float	Phase L1 apparent power maximum	kVA	R
0312-0313	Float	Phase L2 apparent power maximum	kVA	R
0314-0315	Float	Phase L3 apparent power maximum	kVA	R
0316-0317	Float	Total apparent power maximum	kVA	R
0318-0319	Float	Total power factor maximum		R
0320-0321	Float	Grid frequency maximum	Hz	R
0322-0323	Float	Three phase voltage average maximum	V	R
0324-0325	Float	Three line voltage average maximum	V	R
0326-0327	Float	Three phase current average maximum	A	R
0328-0329	Float	Phase L1 voltage minimum	A	R
0330-0331	Float	Phase L2 voltage minimum	A	R
0332-0333	Float	Phase L3 voltage minimum	A	R
0334-0335	Float	Line L12 voltage minimum	V	R
0336-0337	Float	Line L23 voltage minimum	V	R
0338-0339	Float	Line L31 voltage minimum	V	R
0340-0341	Float	Phase L1 current minimum	A	R
0342-0343	Float	Phase L2 current minimum	A	R
0344-0345	Float	Phase L3 current minimum	A	R
0346-0347	Float	In current minimum	A	R
0348-0349	Float	Phase L1 active power minimum	kW	R
0350-0351	Float	Phase L2 active power minimum	kW	R
0352-0353	Float	Phase L3 active power minimum	kW	R
0354-0355	Float	Total active power minimum	kW	R
0356-0357	Float	Phase L1 reactive power minimum	kvar	R

0358-0359	Float	Phase L2 reactive power minimum	kvar	R
0360-0361	Float	Phase L3 reactive power minimum	kvar	R
0362-0363	Float	Total reactive power minimum	kvar	R
0364-0365	Float	Phase L1 apparent power minimum	kVA	R
0366-0367	Float	Phase L2 apparent power minimum	kVA	R
0368-0369	Float	Phase L3 apparent power minimum	kVA	R
0370-0371	Float	Total apparent power minimum	kVA	R
0372-0373	Float	Power factor minimum		R
0374-0375	Float	Grid frequency minimum	Hz	R
0376-0377	Float	Three phase voltage average minimum	V	R
0378-0379	Float	Three line voltage average minimum	V	R
0380-0381	Float	Three phase current average minimum	A	R
0382-0383	Float	Phase L1 current demand maximum	A	R
0384-0385	Float	Phase L2 current demand maximum	A	R
0386-0387	Float	Phase L3 current demand maximum	A	R
0388-0389	Float	Total active power demand maximum	W	R
0390-0391	Float	Total reactive power demand maximum	var	R
0392-0393	Float	Total apparent power demand maximum	VA	R
0394-0395	Float	Phase L1 current present demand	A	R
0396-0397	Float	Phase L2 current present demand	A	R
0398-0399	Float	Phase L3 current present demand	A	R
0400-0401	Float	Total active power present demand	kW	R
0402-0403	Float	Total reactive power present demand	kvar	R
0404-0405	Float	Total apparent power present demand	kVA	R
0406-0407	Float	Phase L1 current demand on the previous cycle	A	R
0408-0409	Float	Phase L2 current demand on the previous cycle	A	R
0410-0411	Float	Phase L3 current demand on the previous cycle	A	R
0412-0413	Float	Total active power demand on the previous cycle	kW	R
0414-0415	Float	Total reactive power demand on the previous	kvar	R

		cycle		
0416-0417	Float	Total apparent power demand on the previous cycle	kVA	R

Harmonics data

Address	Format	Data description	Unit	R/W
0528	Int	Voltage THD - L1	0.01%	R
0529	Int	Voltage THD - L2	0.01%	R
0530	Int	Voltage THD - L3	0.01%	R
0531	Int	Current THD - L1	0.01%	R
0532	Int	Current THD - L2	0.01%	R
0533	Int	Current THD - L3	0.01%	R
0534	Int	Voltage fundamental wave value - L1	0.1V	R
0535	Int	Voltage fundamental wave value - L2	0.1V	R
0536	Int	Voltage fundamental wave value - L3	0.1V	R
0537	Int	Current fundamental wave value - L1	0.001A	R
0538	Int	Current fundamental wave value - L2	0.001A	R
0539	Int	Current fundamental wave value - L3	0.001A	R
0540	Int	Voltage harmonic content - L1	0.1V	R
0541	Int	Voltage harmonic content - L2	0.1V	R
0542	Int	Voltage harmonic content - L3	0.1V	R
0543	Int	Current harmonic content - L1	0.001A	R
0544	Int	Current harmonic content - L2	0.001A	R
0545	Int	Current harmonic content - L3	0.001A	R
0546	Int	2 nd harmonic content - V1	0.01%	R
0547	Int	2 nd harmonic content - V2	0.01%	R
0548	Int	2 nd harmonic content - V3	0.01%	R
0549	Int	2 nd harmonic content - I1	0.01%	R
0550	Int	2 nd harmonic content - I2	0.01%	R
0551	Int	2 nd harmonic content - I3	0.01%	R

0552	Int	3 rd harmonic content -V1	0.01%	R
0553	Int	3 rd harmonic content -V2	0.01%	R
0554	Int	3 rd harmonic content -V3	0.01%	R
0555	Int	3 rd harmonic content -I1	0.01%	R
0556	Int	3 rd harmonic content -I2	0.01%	R
0557	Int	3 rd harmonic content -I3	0.01%	R
0558	Int	4 th harmonic content -V1	0.01%	R
0559	Int	4 th harmonic content -V2	0.01%	R
0560	Int	4 th harmonic content -V3	0.01%	R
0561	Int	4 th harmonic content -I1	0.01%	R
0562	Int	4 th harmonic content -I2	0.01%	R
0563	Int	4 th harmonic content -I3	0.01%	R
0564	Int	5 th harmonic content -V1	0.01%	R
0565	Int	5 th harmonic content -V2	0.01%	R
0566	Int	5 th harmonic content -V3	0.01%	R
0567	Int	5 th harmonic content -I1	0.01%	R
0568	Int	5 th harmonic content -I2	0.01%	R
0569	Int	5 th harmonic content -I3	0.01%	R
0570	Int	6 th harmonic content -V1	0.01%	R
0571	Int	6 th harmonic content -V2	0.01%	R
0572	Int	6 th harmonic content -V3	0.01%	R
0573	Int	6 th harmonic content -I1	0.01%	R
0574	Int	6 th harmonic content -I2	0.01%	R
0575	Int	6 th harmonic content -I3	0.01%	R
0576	Int	7 th harmonic content -V1	0.01%	R
0577	Int	7 th harmonic content -V2	0.01%	R
0578	Int	7 th harmonic content -V3	0.01%	R
0579	Int	7 th harmonic content -I1	0.01%	R
0580	Int	7 th harmonic content -I2	0.01%	R

0581	Int	7 th harmonic content -I3	0.01%	R
0582	Int	8 th harmonic content -V1	0.01%	R
0583	Int	8 th harmonic content -V2	0.01%	R
0584	Int	8 th harmonic content -V3	0.01%	R
0585	Int	8 th harmonic content -I1	0.01%	R
0586	Int	8 th harmonic content -I2	0.01%	R
0587	Int	8 th harmonic content -I3	0.01%	R
0588	Int	9 th harmonic content -V1	0.01%	R
0589	Int	9 th harmonic content-V2	0.01%	R
0590	Int	9 th harmonic content -V3	0.01%	R
0591	Int	9 th harmonic content-I1	0.01%	R
0592	Int	9 th harmonic content-I2	0.01%	R
0593	Int	9 th harmonic content-I3	0.01%	R
0594	Int	10 th harmonic content-V1	0.01%	R
0595	Int	10 th harmonic content-V2	0.01%	R
0596	Int	10 th harmonic content-V3	0.01%	R
0597	Int	10 th harmonic content-I1	0.01%	R
0598	Int	10 th harmonic content-I2	0.01%	R
0599	Int	10 th harmonic content-I3	0.01%	R
0600	Int	11 th harmonic content-V1	0.01%	R
0601	Int	11 th harmonic content-V2	0.01%	R
0602	Int	11 th harmonic content-V3	0.01%	R
0603	Int	11 th harmonic content-I1	0.01%	R
0604	Int	11 th harmonic content-I2	0.01%	R
0605	Int	11 th harmonic content-I3	0.01%	R
0606	Int	12 th harmonic content-V1	0.01%	R
0607	Int	12 th harmonic content-V2	0.01%	R
0608	Int	12 th harmonic content-V3	0.01%	R
0609	Int	12 th harmonic content-I1	0.01%	R

0610	Int	12 th harmonic content-I2	0.01%	R
0611	Int	12 th harmonic content-I3	0.01%	R
0612	Int	13 th harmonic content-V1	0.01%	R
0613	Int	13 th harmonic content-V2	0.01%	R
0614	Int	13 th harmonic content-V3	0.01%	R
0615	Int	13 th harmonic content-I1	0.01%	R
0616	Int	13 th harmonic content-I2	0.01%	R
0617	Int	13 th harmonic content-I3	0.01%	R
0618	Int	14 th harmonic content-V1	0.01%	R
0619	Int	14 th harmonic content-V2	0.01%	R
0620	Int	14 th harmonic content-V3	0.01%	R
0621	Int	14 th harmonic content-I1	0.01%	R
0622	Int	14 th harmonic content-I2	0.01%	R
0623	Int	14 th harmonic content-I3	0.01%	R
0624	Int	15 th harmonic content-V1	0.01%	R
0625	Int	15 th harmonic content-V2	0.01%	R
0626	Int	15 th harmonic content-V3	0.01%	R
0627	Int	15 th harmonic content-I1	0.01%	R
0628	Int	15 th harmonic content-I2	0.01%	R
0629	Int	15 th harmonic content-I3	0.01%	R
0630	Int	16 th harmonic content-V1	0.01%	R
0631	Int	16 th harmonic content-V2	0.01%	R
0632	Int	16 th harmonic content-V3	0.01%	R
0633	Int	16 th harmonic content-I1	0.01%	R
0634	Int	16 th harmonic content-I2	0.01%	R
0635	Int	16 th harmonic content-I3	0.01%	R
0636	Int	17 th harmonic content-V1	0.01%	R
0637	Int	17 th harmonic content-V2	0.01%	R
0638	Int	17 th harmonic content-V3	0.01%	R

0639	Int	17 th harmonic content-I1	0.01%	R
0640	Int	17 th harmonic content-I2	0.01%	R
0641	Int	17 th harmonic content-I3	0.01%	R
0642	Int	18 th harmonic content-V1	0.01%	R
0643	Int	18 th harmonic content-V2	0.01%	R
0644	Int	18 th harmonic content-V3	0.01%	R
0645	Int	18 th harmonic content-I1	0.01%	R
0646	Int	18 th harmonic content-I2	0.01%	R
0647	Int	18 th harmonic content-I3	0.01%	R
0648	Int	19 th harmonic content-V1	0.01%	R
0649	Int	19 th harmonic content-V2	0.01%	R
0650	Int	19 th harmonic content-V3	0.01%	R
0651	Int	19 th harmonic content-I1	0.01%	R
0652	Int	19 th harmonic content-I2	0.01%	R
0653	Int	19 th harmonic content-I3	0.01%	R
0654	Int	20 th harmonic content-V1	0.01%	R
0655	Int	20 th harmonic content-V2	0.01%	R
0656	Int	20 th harmonic content-V3	0.01%	R
0657	Int	20 th harmonic content-I1	0.01%	R
0658	Int	20 th harmonic content-I2	0.01%	R
0659	Int	20 th harmonic content-I3	0.01%	R
0660	Int	21 st harmonic content-V1	0.01%	R
0661	Int	21 st harmonic content-V2	0.01%	R
0662	Int	21 st harmonic content-V3	0.01%	R
0663	Int	21 st harmonic content-I1	0.01%	R
0664	Int	21 st harmonic content-I2	0.01%	R
0665	Int	21 st harmonic content-I3	0.01%	R
0666	Int	22 nd harmonic content-V1	0.01%	R
0667	Int	22 nd harmonic content-V2	0.01%	R

0668	Int	22 nd harmonic content-V3	0.01%	R
0669	Int	22 nd harmonic content-I1	0.01%	R
0670	Int	22 nd harmonic content-I2	0.01%	R
0671	Int	22 nd harmonic content-I3	0.01%	R
0672	Int	23 rd harmonic content-V1	0.01%	R
0673	Int	23 rd harmonic content-V2	0.01%	R
0674	Int	23 rd harmonic content-V3	0.01%	R
0675	Int	23 rd harmonic content-I1	0.01%	R
0676	Int	23 rd harmonic content-I2	0.01%	R
0677	Int	23 rd harmonic content-I3	0.01%	R
0678	Int	24 th harmonic content-V1	0.01%	R
0679	Int	24 th harmonic content-V2	0.01%	R
0680	Int	24 th harmonic content-V3	0.01%	R
0681	Int	24 th harmonic content-I1	0.01%	R
0682	Int	24 th harmonic content-I2	0.01%	R
0683	Int	24 th harmonic content-I3	0.01%	R
0684	Int	25 th harmonic content-V1	0.01%	R
0685	Int	25 th harmonic content-V2	0.01%	R
0686	Int	25 th harmonic content-V3	0.01%	R
0687	Int	25 th harmonic content-I1	0.01%	R
0688	Int	25 th harmonic content-I2	0.01%	R
0689	Int	25 th harmonic content-I3	0.01%	R
0690	Int	26 th harmonic content-V1	0.01%	R
0691	Int	26 th harmonic content-V2	0.01%	R
0692	Int	26 th harmonic content-V3	0.01%	R
0693	Int	26 th harmonic content-I1	0.01%	R
0694	Int	26 th harmonic content-I2	0.01%	R
0695	Int	26 th harmonic content-I3	0.01%	R
0696	Int	27 th harmonic content-V1	0.01%	R

0697	Int	27 th harmonic content-V2	0.01%	R
0698	Int	27 th harmonic content-V3	0.01%	R
0699	Int	27 th harmonic content-I1	0.01%	R
0700	Int	27 th harmonic content-I2	0.01%	R
0701	Int	27 th harmonic content-I3	0.01%	R
0702	Int	28 th harmonic content-V1	0.01%	R
0703	Int	28 th harmonic content-V2	0.01%	R
0704	Int	28 th harmonic content-V3	0.01%	R
0705	Int	28 th harmonic content-I1	0.01%	R
0706	Int	28 th harmonic content-I2	0.01%	R
0707	Int	28 th harmonic content-I3	0.01%	R
0708	Int	29 th harmonic content-V1	0.01%	R
0709	Int	29 th harmonic content-V2	0.01%	R
0710	Int	29 th harmonic content-V3	0.01%	R
0711	Int	29 th harmonic content-I1	0.01%	R
0712	Int	29 th harmonic content-I2	0.01%	R
0713	Int	29 th harmonic content-I3	0.01%	R
0714	Int	30 th harmonic content-V1	0.01%	R
0715	Int	30 th harmonic content-V2	0.01%	R
0716	Int	30 th harmonic content-V3	0.01%	R
0717	Int	30 th harmonic content-I1	0.01%	R
0718	Int	30 th harmonic content-I2	0.01%	R
0719	Int	30 th harmonic content-I3	0.01%	R
0720	Int	31 st harmonic content-V1	0.01%	R
0721	Int	31 st harmonic content-V2	0.01%	R
0722	Int	31 st harmonic content-V3	0.01%	R
0723	Int	31 st harmonic content-I1	0.01%	R
0724	Int	31 st harmonic content-I2	0.01%	R
0725	Int	31 st harmonic content-I3	0.01%	R

0726-0767	Reserved
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Set register

Address	Format	Data content	Data description	R/W
2044	Char	High byte: year Low byte: month	Time data	R
2045	Char	High byte: day Low byte: hour		R
2046	Char	High byte: minute Low byte: second		R
2047	Char	High byte: week Low byte: reserve		R
2048-2049	Long	Accumulated running time of the meter	Unit: min	R
2050-2051	Long	Nº of records stored in the TCIL2-T model	--	--
2052	Int	High byte: first display interface after power on Low byte: reserved	0: U; 1: I; 2: F; 3: P; 4: Q; 5: S; 6: PF 7: EN	R/W
2053	Int	High byte: backlight duration time (s)	0: normal on 1-255s,	R/W
		Low byte: automatic circular display	0: automatic circular display off 1: enable automatic circular display	
2054	Int	High byte: #1meter address	1-247	R/W
		Low byte: #1 baud rate	0: 1200bps 1: 2400bps 2: 4800bps 3: 9600bps 4: 19200bps	

2055	Int	High byte: #1 check mode	0: N,8,1 1: E,8,1 2: O,8,1 3: N,8,2	R/W
	Int	Low byte: #1 communication protocol	0: Modbus-RTU 1: BACNet	R/W
2056-2057	Reserved			
2058	Int	High byte: wiring mode	0: 3P4W 1: 3P3W 2: 1P2W	R/W
		Reserved		
2059	Reserved			
2060-2061	Long	Primary voltage	1~999999 V	R/W
2062-2063	Long	Primary current	1~999999 A	R/W
2064	Int	Secondary voltage	1~699 V	R/W
2065	Int	Secondary current	1~6 A	R/W
2066-2067	Long	Pulse constant setting	Constant value 5000	R/W
2068	Int	Extreme value interval setting	1-60 min	R/W
2069		Reserved		
2070	Int	Summer time enable	0x55: enable summer time ! 0x55: off summer time	R/W
2071		Reserved		
2072	Int	The 1 st -6th way demand item	0: IPQS (fixed) Including I1, I2,I3,P,Q,S	R/W
2073	Int	Demand working mode	0: slip block 1: fixed block	R/W
2074	Int	Demand slip time (t)	1-9999s	R/W
2075	Int	Demand calculation cycle(T)	1-30t	R/W

2076	Reserved			
2077	Int	The 1 st relay working mode	Working mode: 0: OFF, 1: alarm mode, 2: remote control mode 3: energy pulse	R/W
2078	Int	The 1 st relay pulse width	0.0: level mode 0.1~99.99: second pulse width	R/W
2079	Int	The 1 st relay alarm item	When the working mode is 2: 0: Phase L1 over-voltage 1: Phase L1 under-voltage 2: Phase L2 over-voltage 3: Phase L2 under-voltage 4: Phase L3 over-voltage 5: Phase L3 under-voltage 6: Any phase over-voltage 7: Any phase under-voltage 8: Line L12 over-voltage 9: Line L12 under-voltage 10: Line L23 over-voltage 11: Line L23 under-voltage 12: Line L31 over-voltage 13: Line L31 under-voltage 14: Any line over-voltage 15: Any line under-voltage 16: Average phase over-voltage 17: Average phase under-voltage 18: Average line over-voltage 19: Average line under-voltage 20: Phase L1 over-current 21: Phase L1 under-current	R/W

			22: Phase L2 over-current 23: Phase L2 under-current 23: Phase L3 over-current 25: Phase L3 under-current 26: Any phase over-current 27: Any phase under-current 28: Average over-current 29: Average under-current 30: Total active power overload 31: Total active power underload 32: Total reactive power overload 33: Total reactive power underload 34: Total apparent power overload 35: Total apparent power underload 36: high power factor 37: low power factor 38: Frequency over limit 39: Frequency under limit 40: voltage unbalance rate high alarm 41: voltage unbalance rate low alarm 42: current unbalance rate high alarm 43: current unbalance rate low alarm 44: High voltage total harmonic distortion rate 45: Low voltage total harmonic	
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			distortion rate 46: High current total harmonic distortion rate 47: Low current total harmonic distortion rate	
2080-2081	float	The 1st relay alarm value	see section 5.7 for values	R/W
2082-2083	float	The 1st relay hysteresis	see section 5.7 for values	R/W
2084	Int	The 1st relay alarm delay	0~99.99s	R/W
2085	reserved			
2086	Int	The 2 nd relay working mode	Working mode: 0: OFF, 1: alarm mode, 2: remote control mode 3: energy pulse	R/W
2087	Int	The 2 nd relay pulse width	0.0: level mode 0.1~99.99: second pulse width	R/W
2088	Int	The 2 nd relay alarm item	When the working mode is 2: 0: Phase L1 over-voltage 1: Phase L1 under-voltage 2: Phase L2 over-voltage 3: Phase L2 under-voltage 4: Phase L3 over-voltage 5: Phase L3 under-voltage 6: Any phase over-voltage 7: Any phase under-voltage 8: Line L12 over-voltage 9: Line L12 under-voltage 10: Line L23 over-voltage 11: Line L23 under-voltage 12: Line L31 over-voltage 13: Line L31 under-voltage	R/W

			14: Any line over-voltage 15: Any line under-voltage 16: Average phase over-voltage 17: Average phase under-voltage 18: Average line over-voltage 19: Average line under-voltage 20: Phase L1 over-current 21: Phase L1 under-current 22: Phase L2 over-current 23: Phase L2 under-current 23: Phase L3 over-current 25: Phase L3 under-current 26: Any phase over-current 27: Any phase under-current 28: Average over-current 29: Average under-current 30: Total active power overload 31: Total active power underload 32: Total reactive power overload 33: Total reactive power underload 34: Total apparent power overload 35: Total apparent power underload 36: high power factor 37: low power factor 38: Frequency over limit 39: Frequency under limit 40: voltage unbalance rate high alarm 41: voltage unbalance rate low	
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			alarm 42: current unbalance rate high alarm 43: current unbalance rate low alarm 44: High voltage total harmonic distortion rate 45: Low voltage total harmonic distortion rate 46: High current total harmonic distortion rate 47: Low current total harmonic distortion rate	
2089-2090	float	The 2 nd relay alarm value	see section 5.7 for values	R/W
2091-2092	float	The 2 nd relay hysteresis	see section 5.7 for values	R/W
2093	Int	The 2 nd relay alarm delay	0~99.99s	R/W
2094-2095	reserve			
2096	Int	Tariff selection	0: OFF; 1: Summer/Winter time tariff; 2: 12 seasons tariff	R/W
2097	Int	Season1 start date	Jan. 1 st (fixed)	R/W
2098	Int	Season2 start date	High byte: month Low byte: day	R/W
2099	Int	Season3 start date	High byte: month Low byte: day	R/W
2100	Int	Season4 start date	High byte: month Low byte: day	R/W
2101	Int	Season5 start date	High byte: month Low byte: day	R/W
2102	Int	Season6 start date	High byte: month	R/W

			Low byte: day	
2103	Int	Season7 start date	High byte: month Low byte: day	R/W
2104	Int	Season8 start date	High byte: month Low byte: day	R/W
2105	Int	Season9 start date	High byte: month Low byte: day	R/W
2106	Int	Season10 start date	High byte: month Low byte: day	R/W
2107	Int	Season11 start date	High byte: month Low byte: day	R/W
2108	Int	Season12 start date	High byte: month Low byte: day	R/W
2109	Int	The tariff type is summer and winter tariff: Winter tariff table setting; The tariff type is the 12 season tariff: Season1 tariff table setting;	High byte: workday tariff table Low byte: weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	R/W
2110	Int	The tariff type is summer and winter tariff: Summer tariff table setting; The tariff type is the 12 season tariff: Season2 tariff table setting;	High byte: workday tariff table Low byte: weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	R/W
2111	Int	Season3 tariff	High byte: workday tariff table	R/W

		table setting	Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	
2112	Int	Season4 tariff table setting	High byte: workday tariff table Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	R/W
2113	Int	Season5 tariff table setting	High byte: workday tariff table Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	R/W
2114	Int	Season6 tariff table setting	High byte: workday tariff table Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table	R/W

			5: #6 daily tariff table	
2115	Int	Season7 tariff table setting	High byte: workday tariff table Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	R/W
2116	Int	Season8 tariff table setting	High byte: workday tariff table Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	R/W
2117	Int	Season9 tariff table setting	High byte: workday tariff table Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	R/W
2118	Int	Season10 tariff table setting	High byte: workday tariff table Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table	R/W

			2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	
2119	Int	Season11 tariff table setting	High byte: workday tariff table Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	R/W
2120	Int	Season12 tariff table setting	High byte: workday tariff table Low byte : weekend, holiday tariff table 0: #1 daily tariff table 1: #2 daily tariff table 2: #3 daily tariff table 3: #4 daily tariff table 5: #6 daily tariff table	R/W
2121	Int	#1 Daily tariff table period	#1 period:00h: 00m(fixed)	R/W
2122	Int	#1 Daily tariff table period	#2 period: high byte-hour, Low byte-minute	R/W
2123	Int	#1 Daily tariff table period	#3 period: high byte-hour, Low byte-minute	R/W
2124	Int	#1 Daily tariff table period	#4 period: high byte-hour, Low byte-minute	R/W
2125	Int	#1 Daily tariff table period	#5 period: high byte-hour, Low byte-minute	R/W
2126	Int	#1 Daily tariff table	#6 period: high byte-hour,	R/W

		period	Low byte-minute	
2127	Int	#1 Daily tariff table period	#7 period: high byte-hour, Low byte-minute	R/W
2128	Int	#1 Daily tariff table period	#8 period: high byte-hour, Low byte-minute	R/W
2129	Int	#2 Daily tariff table period	#1 period:00h: 00m(fixed)	R/W
2130	Int	#2 Daily tariff table period	#2 period: high byte-hour, Low byte-minute	R/W
2131	Int	#2 Daily tariff table period	#3 period: high byte-hour, Low byte-minute	R/W
2132	Int	#2 Daily tariff table period	#4 period: high byte-hour, Low byte-minute	R/W
2133	Int	#2 Daily tariff table period	#5 period: high byte-hour, Low byte-minute	R/W
2134	Int	#2 Daily tariff table period	#6 period: high byte-hour, Low byte-minute	R/W
2135	Int	#2 Daily tariff table period	#7 period: high byte-hour, Low byte-minute	R/W
2136	Int	#2 Daily tariff table period	#8 period: high byte-hour, Low byte-minute	R/W
2137	Int	#3 Daily tariff table period	#1 period:00h: 00m(fixed)	R/W
2138	Int	#3 Daily tariff table period	#2 period: high byte-hour, Low byte-minute	R/W
2139	Int	#3 Daily tariff table period	#3 period: high byte-hour, Low byte-minute	R/W
2140	Int	#3 Daily tariff table period	#4 period: high byte-hour, Low byte-minute	R/W
2141	Int	#3 Daily tariff table	#5 period: high byte-hour,	R/W

		period	Low byte-minute	
2142	Int	#3 Daily tariff table period	#6 period: high byte-hour, Low byte-minute	R/W
2143	Int	#3 Daily tariff table period	#7 period: high byte-hour, Low byte-minute	R/W
2144	Int	#3 Daily tariff table period	#8 period: high byte-hour, Low byte-minute	R/W
2145	Int	#4 Daily tariff table period	#1 period:00h: 00m(fixed)	R/W
2146	Int	#4 Daily tariff table period	#2 period: high byte-hour, Low byte-minute	R/W
2147	Int	#4 Daily tariff table period	#3 period: high byte-hour, Low byte-minute	R/W
2148	Int	#4 Daily tariff table period	#4 period: high byte-hour, Low byte-minute	R/W
2149	Int	#4 Daily tariff table period	#5 period: high byte-hour, Low byte-minute	R/W
2150	Int	#4 Daily tariff table period	#6 period: high byte-hour, Low byte-minute	R/W
2151	Int	#4 Daily tariff table period	#7 period: high byte-hour, Low byte-minute	R/W
2152	Int	#4 Daily tariff table period	#8 period: high byte-hour, Low byte-minute	R/W
2153	Int	#5 Daily tariff table period	#1 period:00h: 00m(fixed)	R/W
2154	Int	#5 Daily tariff table period	#2 period: high byte-hour, Low byte-minute	R/W
2155	Int	#5 Daily tariff table period	#3 period: high byte-hour, Low byte-minute	R/W
2156	Int	#5 Daily tariff table	#4 period: high byte-hour,	R/W

		period	Low byte-minute	
2157	Int	#5 Daily tariff table period	#5 period: high byte-hour, Low byte-minute	R/W
2158	Int	#5 Daily tariff table period	#6 period: high byte-hour, Low byte-minute	R/W
2159	Int	#5 Daily tariff table period	#7 period: high byte-hour, Low byte-minute	R/W
2160	Int	#5 Daily tariff table period	#8 period: high byte-hour, Low byte-minute	R/W
2161	Int	#6 Daily tariff table period	#1 period: 00h: 00m(fixed)	R/W
2162	Int	#6 Daily tariff table period	#2 period: high byte-hour, Low byte-minute	R/W
2163	Int	#6 Daily tariff table period	#3 period: high byte-hour, Low byte-minute	R/W
2164	Int	#6 Daily tariff table period	#4 period: high byte-hour, Low byte-minute	R/W
2165	Int	#6 Daily tariff table period	#5 period: high byte-hour, Low byte-minute	R/W
2166	Int	#6 Daily tariff table period	#6 period: high byte-hour, Low byte-minute	R/W
2167	Int	#6 Daily tariff table period	#7 period: high byte-hour, Low byte-minute	R/W
2168	Int	#6 Daily tariff table period	#8 period: high byte-hour, Low byte-minute	R/W
2169	Int	#1 daily tariff	High byte: tariff of #1 time period Low byte: tariff of #2 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W

2170	Int	#1 daily tariff	High byte: tariff of #3 time period Low byte: tariff of #4 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2171	Int	#1 daily tariff	High byte: tariff of #5 time period Low byte: tariff of #6 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2172	Int	#1 daily tariff	High byte: tariff of #7 time period Low byte: tariff of #8 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2173	Int	#2 daily tariff	High byte: tariff of #1 time period Low byte: tariff of #2 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2174	Int	#2 daily tariff	High byte: tariff of #3 time period Low byte: tariff of #4 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2175	Int	#2 daily tariff	High byte: tariff of #5 time period Low byte: tariff of #6 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W

2176	Int	#2 daily tariff	High byte: tariff of #7 time period Low byte: tariff of #8 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2177	Int	#3 daily tariff	High byte: tariff of #1 time period Low byte: tariff of #2 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2178	Int	#3 daily tariff	High byte: tariff of #3 time period Low byte: tariff of #4 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2179	Int	#3 daily tariff	High byte: tariff of #5 time period Low byte: tariff of #6 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2180	Int	#3 daily tariff	High byte: tariff of #7 time period Low byte: tariff of #8 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2181	Int	#4 daily tariff	High byte: tariff of #1 time period Low byte: tariff of #2 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W

2182	Int	#4 daily tariff	High byte: tariff of #3 time period Low byte: tariff of #4 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2183	Int	#4 daily tariff	High byte: tariff of #5 time period Low byte: tariff of #6 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2184	Int	#4 daily tariff	High byte: tariff of #7 time period Low byte: tariff of #8 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2185	Int	#5 daily tariff	High byte: tariff of #1 time period Low byte: tariff of #2 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2186	Int	#5 daily tariff	High byte: tariff of #3 time period Low byte: tariff of #4 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2187	Int	#5 daily tariff	High byte: tariff of #5 time period Low byte: tariff of #6 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W

2188	Int	#5 daily tariff	High byte: tariff of #7 time period Low byte: tariff of #8 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2189	Int	#6 daily tariff	High byte: tariff of #1 time period Low byte: tariff of #2 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2190	Int	#6 daily tariff	High byte: tariff of #3 time period Low byte: tariff of #4 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2191	Int	#6 daily tariff	High byte:tariff of #5 time period Low byte:tariff of #6 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2192	Int	#6 daily tariff	High byte: tariff of #7 time period Low byte: tariff of #8 time period 0: T1 tariff; 1: T2 tariff 2: T3 tariff; 3: T4 tariff 4: T5 tariff; 5: T6 tariff	R/W
2193	Int	Monthly meter reading time setting	High byte: date (1-28) Low byte: hour (0-23)	R/W
2194				
2195	Int	Fixed holiday 1	High byte: month Low byte: day	

2196	Int	Fixed holiday 2	High byte: month Low byte: day	R/W
2197	Int	Fixed holiday 3	High byte: month Low byte: day	R/W
2198	Int	Fixed holiday 4	High byte: month Low byte: day	R/W
2199	Int	Fixed holiday 5	High byte: month Low byte: day	R/W
2200	Int	Fixed holiday 6	High byte: month Low byte: day	R/W
2201	Int	Fixed holiday 7	High byte: month Low byte: day	R/W
2202	Int	Fixed holiday 8	High byte: month Low byte: day	R/W
2203	Int	Fixed holiday 9	High byte: month Low byte: day	R/W
2204	Int	Fixed holiday 10	High byte: month Low byte: day	R/W
2205	Int	Fixed holiday 11	High byte: month Low byte: day	R/W
2206	Int	Fixed holiday 12	High byte: month Low byte: day	R/W
2207	Int	Fixed holiday 13	High byte: month Low byte: day	R/W
2208	Int	Fixed holiday 14	High byte: month Low byte: day	R/W
2209	Int	Fixed holiday 15	High byte: month Low byte: day	R/W
2210	Int	Fixed holiday 16	High byte: month Low byte: day	R/W

2211	Int	Fixed holiday 17	High byte: month Low byte: day	R/W
2212	Int	Fixed holiday 18	High byte: month Low byte: day	R/W
2213	Int	Fixed holiday 19	High byte: month Low byte: day	R/W
2214	Int	Fixed holiday 20	High byte: month Low byte: day	R/W
2215	Int	Fixed holiday 21	High byte: month Low byte: day	R/W
2216	Int	Fixed holiday 22	High byte: month Low byte: day	R/W
2217	Int	Variable holiday 1	Year	R/W
2218	Int	Variable holiday 1	High byte: month Low byte: day	R/W
2219	Int	Variable holiday 2	Year	R/W
2220	Int	Variable holiday 2	High byte: month Low byte: day	R/W
2221	Int	Variable holiday 3	Year	R/W
2222	Int	Variable holiday 3	High byte: month Low byte: day	R/W
2223	Int	Variable holiday 4	Year	R/W
2224	Int	Variable holiday 4	High byte: month Low byte: day	R/W
2225	Int	Variable holiday 5	Year	R/W
2226	Int	Variable holiday 5	High byte: month Low byte: day	R/W
2227	Int	Variable holiday 6	Year	R/W
2228	Int	Variable holiday 6	High byte: month Low byte: day	R/W

2229	Int	Variable holiday 7	Year	R/W
2230	Int	Variable holiday 7	High byte: month Low byte: day	R/W
2231	Int	Variable holiday 8	Year	R/W
2232	Int	Variable holiday 8	High byte: month Low byte: day	R/W
2233	Int	Variable holiday 9	Year	R/W
2234	Int	Variable holiday 9	High byte: month Low byte: day	R/W
2235	Int	Variable holiday 10	Year	R/W
2236	Int	Variable holiday 10	High byte: month Low byte: day	R/W
2237-2269	reserve			
2270	Char	Protocol selection	0-Modbus-TCP,1-BACNet	R/W
2271	Char	Host address IP[3]	0-255	R/W
2272	Char	Host address IP[2]	0-255	R/W
2273	Char	Host address IP[1]	0-255	R/W
2274	Char	Host address IP[0]	0-255	R/W
2275	Char	Subnet mask Mask[3]	0-255	R/W
2276	Char	Subnet mask Mask[2]	0-255	R/W
2277	Char	Subnet mask Mask[1]	0-255	R/W
2278	Char	Subnet mask Mask[0]	0-255	R/W
2279	Char	Gateway address Gate[3]	0-255	R/W
2280	Char	Gateway address Gate[2]	0-255	R/W
2281	Char	Gateway address Gate[1]	0-255	R/W
2282	Char	Gateway address Gate[0]	0-255	R/W
2283	Char	MAC[5]	0-255	R/W
2284	Char	MAC[4]	0-255	R/W
2285	Char	MAC[3]	0-255	R/W

2286	Char	MAC[2]	0-255	R/W
2287	Char	MAC[1]	0-255	R/W
2288	Char	MAC[0]	0-255	R/W
2289	Int	Display interface definition 1	Bit0: UL1; Bit1: UL2; Bit2: UL3; Bit3: UL12; Bit4: UL23; Bit5: UL31; Bit6: IL1; Bit7: IL2; Bit8: IL3; Bit9: F; Bit10: PL1; Bit11: PL2; Bit12: PL3; Bit13: P; Bit14: QL1 Bit15: QL2	R/W
2290	Int	Display interface definition 2	Bit0: QL3; Bit1: Q; Bit2: SL1; Bit3: SL2; Bit4: SL3; Bit5: S; Bit6: PFL1; Bit7: PFL2; Bit8: PFL3; Bit9: PF; Bit10: EA+; Bit11: EA-; Bit12: EQ+; Bit13: EQ-; Bit14: EAtr Bit15: EQ1	R/W
2291	Int	Display interface definition 3	Bit0: EQ2; Bit1: EQ3; Bit2: EQ4; Bit3: ET; Bit4: ET1; Bit5: ET2; Bit6: ET3; Bit7: ET4; Bit8: ET5; Bit9: ET6; Bit10 current fee; Bit11: DmdMaxIL1; Bit12: DmdMaxIL2; Bit13: DmdMaxIL3; Bit14: DmdMaxP; Bit15: DmdMaxQ;	R/W
2292	Int	Display interface definition 4	Bit0: DmdMaxS; Bit1: DmdNowIL1; Bit2: DmdNowIL2; Bit3: DmdNowIL3; Bit4: DmdNowP; Bit5: DmdNowQ;	R/W

			Bit6: DmdNowS; Bit7: Set_Addr; Bit8: Set_Baud; Bit9: Set_Data; Bit10: Set_Net; Bit11: Set_Pt; Bit12: Set_Ct; Bit13: Clock1(YMD); Bit14: Clock2(HMS); Bit15: Meter run time	
2293-2299	Reserved			
2300	Int	Item of Record 1#. Only for models TCIL2 and TCIL2T-TCP	0: V1 (V) 1: V2 (V) 2: V3 (V) 3: V12 (V) 4: V23 (V) 5: V31(V) 6: I1 (A) 7: I2 (A) 8: I3 (A) 9: In (A) 10: P1 (kW) 11: P2 (kW) 12: P3 (kW) 13: P (kW) 14: Q1 (kvar) 15: Q2 (kvar) 16: Q3 (kvar) 17: Q (kvar) 18: S1 (kVA) 19: S2 (kVA) 20: S3 (kVA) 21: S (kVA)	R/W

			22: PF1 23: PF2 24: PF3 25: PF 26: F (Hz) 27: U Phase average (V) 28: U Line average (V) 29: I average (A) 30: Phase angle of V1 (°) 31: Phase angle of V2 (°) 32: Phase angle of V3 (°) 33: Phase angle of I1 (°) 34: Phase angle of I2 (°) 35: Phase angle of I3 (°) 36: Positive-sequence component of voltage (V) 37: Negative-sequence component of voltage (V) 38: Zero-sequence component of voltage (V) 39: Unbalance factor of voltage 40: Reserved 41: Positive-sequence component of current (A) 42: Negative-sequence component of current (A) 43: Zero-sequence component of current (A) 44: Unbalance factor of current 45: Reserved	
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			46: THD-V1 (%) 47: THD-V2 (%) 48: THD-V3 (%) 49: THD-I1 (%) 50: THD-I2 (%) 51: THD-I3 (%) 52: EP+ (kWh) 53: EP- (kWh) 54: EQ+ (kvarh) 55: EQ- (kvarh) 56: ES (kvah) 57-60: EQ1 EQ2 EQ3 EQ4 (kvarh)	
2301-2316	Int	Item of Record 2#--17#	the same as above	R/W

Device information

Address	Format	Data description	Unit	R/W
0xFFE0~0xFFEF	Char	Model (ASCII code)		R

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The information in this document is subject to change without notice