

Zhejiang Yongtallong Electronic Co.,Ltd.

No.320. Tongsheng Road  
Tongxiang ,Jiaxing City,  
Zhejiang Province ,P.R.China  
314500

[www.ytl-e.com](http://www.ytl-e.com)

# Data Sheet

## DEM4A Series

### DIN Rail Multifunctional Three phase Power Meter (MID Certified)

- DEM4A009:** Basic Type, With IR, 2 SO output (variable constant), with different measurements way
- DEM4A00B:** IR + RS485 MODBUS/DLT645 +dual protocol+2 SO output (variable constant)with different measurements
- DEM4A00B-1:** IR + RS485 MODBUS/DLT645 +dual protocol+2 SO output (variable constant)with different measurements ,wiring from bottom to top
- DEM4A10B:** IR+RS485 MODBUS/DLT645 dual protocol+2 SO output (variable constant)+ Multi-tariff function,with different measurements
- DEM4A20B:** IR + RS485 MODBUS/DLT645 +dual protocol+1 SO output (variable constant)+1 Signal input port,with different measurements
- DEM4A30B:** IR+RS485 MODBUS/DLT645 dual protocol+1 SO output (variable constant)+1 Signal input port+ Multi-tariff function,with different measurements

***More options to meet different requirements from market !***



## Three Phase Multifunctional Meter

The DEM4A Series Digital Power Meter works directly connected to a maximum load 100A AC circuit

This meter will be applied the MID B&D Certified by SGS, proving both it's accuracy and quality. This certification allows this model to be used for any sub-billing application

**MID**

Zhejiang Yongtailong Electronic Co.Ltd.

DEM4A Series Three Phase Din Rail kWh Meter

[www.ytl-e.com](http://www.ytl-e.com)

# 1. Specifications

## Technical Parameters

Content	Parameters
Standard:	EN50470-1/3
Rated Voltage:	3*230(400)V
Rated Current:	0,25-5(30)A,0,25-5(32)A,0,25-5(40)A,0,25-5(45)A, 0,25-5(50)A,0,25-5(60)A, 0,5-10(80)A,0,5-10(100)A
Impulse Constant:	1000imp/kWh(LED) 1000imp/kvarh(LED)
Frequency:	50Hz
Accuracy Class:	B
LCD Display:	LCD 6+2
Working Temperature:	-40~70℃
Storage Temperature:	-40~70℃
Power Consumption:	<12VA <1W
Average Humidity:	≤75% (Non Condensing)
Maximum Humidity:	≤95%
Start Current:	0.004Ib
Case Protection	IP51 indoor

## 2.Meter Series Details

Type	DEM4A009	DEM4A00B	DEM4A00B-1	DEM4A10B	DEM4A20B	DEM4A30B
<b>Software Version</b>	V301	V301	V301	V301	V301	V301
<b>CRC</b>	708A	5B61	6D95	2B60	5B61	2B60
<b>Impulse Constant</b>	1000imp/kWh 1000imp/kvarh	1000imp/kWh 1000imp/kvarh	1000imp/kWh 1000imp/kVarh	1000imp/kWh 1000imp/kvarh	1000imp/kWh 1000imp/kvarh	1000imp/kWh 1000imp/kvarh
<b>Communication</b>	IR	IR,RS485	IR,RS485	IR,RS485	IR,RS485	IR,RS485
<b>Baud rate</b>	N/A	9600\19200\ 38400\115200	9600\19200\ 38400\115200	9600\19200\ 38400\115200	9600\19200\ 38400\115200	9600\19200\ 38400\115200
<b>SO output</b>	SO1 is SO output for kWh(default) or Active/reactive forward kWh optional with variable constant	SO1 is SO output for kWh(default) or Active/reactive forward kWh optional with variable constant	SO1 is SO output for kWh(default) or Active/reactive forward kWh optional with variable constant	SO1 is SO output for kWh(default) or Active/reactive forward kWh optional with variable constant	SO output for Active kWh with variable constant	SO output for Active kWh with variable constant
	SO2 is SO output for kvarh (default) or Active/reactive reverse kWh optional with variable constant	SO2 is SO output for kvarh (default) or Active/reactive reverse kWh optional with variable constant	SO2 is SO output for kvarh (default) or Active/reactive reverse kWh optional with variable constant	SO2 is SO output for kvarh (default) or Active/reactive reverse kWh optional with variable constant	External Signal input port	External Signal input port

<b>Pulse width</b>	Changeable pulse width according to current, the bigger the current the shorter the pulse width					
<b>Backlight</b>	Blue	Blue	Blue	Blue	Blue	Blue
<b>Li-Battery</b>	N/A	N/A	N/A	YES	N/A	YES
<b>Multi-tariff</b>	N/A	N/A	N/A	YES	N/A	YES
<b>Measurement Mode</b>	1.total =forward 2.Total=reverse 3.Total =forward +reverse (default) 4.Total=Forward-Reverse					
<b>Button</b>	Touch button	Touch button	Touch button	Touch button	Touch button	Touch button
<b>Button function</b>	Left button:Page turning, Right button: Page turning,setting information display					
<b>Default setting</b>	/	9600/NONE /8/1	9600/NONE /8/1	9600/NONE /8/1	9600/NONE /8/1	9600/NONE /8/1
<b>Measurement Mode setting</b>	Button	RS485 or Button	RS485 or Button	RS485 or Button	RS485 or Button	RS485 or Button

### 3. LCD Display layout

*Different values with different indicators*



**DEM4A009/DEM4A00B/DEM4A00B-1/DEM4A10B/DEM4A20B/DEM4A30B**

#### LCD Scrolling Display Page

Page	Content	Unit	Format	Remark
1	Total active energy	kWh	6+2 000000.00	

2	Forward active energy	kWh	6+2 000000.00	
3	Reverse active energy	kWh	5+2 00000.00	With indicator of “-”
4	T1 Total active energy	kWh	6+2 000000.00	
5	T1 Forward active energy	kWh	6+2 000000.00	
6	T1 Reverse active energy	kWh	5+2 00000.00	With indicator of “-”
7	T2 Total active energy	kWh	6+2 000000.00	
8	T2 Forward active energy	kWh	6+2 000000.00	
9	T2 Reverse active energy	kWh	5+2 00000.00	With indicator of “-”
10	T3 Total active energy	kWh	6+2 000000.00	
11	T3 Forward active energy	kWh	6+2 000000.00	
12	T3 Reverse active energy	kWh	5+2 00000.00	With indicator of “-”
13	T4 Total active energy	kWh	6+2 000000.00	
14	T4 Forward active energy	kWh	6+2 000000.00	
15	T4 Reverse active energy	kWh	5+2 00000.00	With indicator of “-”
16	Total reactive energy	kvarh	6+2 000000.00	
17	Forward reactive energy	kvarh	6+2 000000.00	
18	Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
19	The first quadrant reactive power	kvarh	6+2 000000.00	
20	The second quadrant reactive power	kvarh	6+2 000000.00	
21	The third quadrant reactive power	kvarh	6+2 000000.00	
22	The forth quadrant reactive power	kvarh	6+2 000000.00	
23	T1 Total reactive energy	kvarh	6+2 000000.00	
24	T1 Forward reactive energy	kvarh	6+2 000000.00	
25	T1 Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
26	T2 Total reactive energy	kvarh	6+2 000000.00	
27	T2 Forward reactive energy	kvarh	6+2 000000.00	
28	T2 Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
29	T3 Total reactive energy	kvarh	6+2 000000.00	
30	T3 Forward reactive energy	kvarh	6+2 000000.00	
31	T3 Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
32	T4 Total reactive energy	kvarh	6+2 000000.00	
33	T4 Forward reactive energy	kvarh	6+2 000000.00	
34	T4 Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
35	Re-settable Active energy	kWh	6+2 000000.00	
36	Forward active energy can be cleared	kWh	6+2 000000.00	
37	Reverse active energy can be cleared	kWh	5+2 00000.00	With indicator of “-”

38	Re-settable Reactive energy	kvarh	6+2 000000.00	
39	Forward reactive energy can be cleared	kvarh	6+2 000000.00	
40	Reverse reactive energy can be cleared	kvarh	5+2 000000.00	With indicator of “-”
41	Maximum active power demand	kW	2+3 00.000	
42	Forward maximum active power demand	kW	2+3 00.000	
43	Reverse maximum active power demand	kW	2+3 00.000	With indicator of “-”
44	Maximum reactive power demand	kvar	2+3 00.000	
45	Forward maximum reactive power demand	kvar	2+3 00.000	
46	Reverse maximum reactive power demand	kvar	2+3 00.000	With indicator of “-”
47	A-N voltage	V	3+2 000.00	
48	B-N voltage	V	3+2 000.00	
49	C-N voltage	V	3+2 000.00	
50	A-B voltage	V	3+2 000.00	
51	B-C voltage	V	3+2 000.00	
52	C-A voltage	V	3+2 000.00	
53	Phase A current	A	3+3 000.000	With indicator of “-”when reverse
54	Phase B current	A	3+3 000.000	With indicator of “-”when reverse
55	Phase C current	A	3+3 000.000	With indicator of “-”when reverse
56	Total active power	kw	3+3 000.000	With indicator of “-”when reverse
57	Phase A active power	kw	2+3 00.000	With indicator of “-”when reverse
58	Phase B active power	kw	2+3 00.000	With indicator of “-”when reverse
59	Phase C active power	kw	2+3 00.000	With indicator of “-”when reverse
60	Total reactive power	kvar	2+3 00.000	With indicator of “-”when reverse
61	Phase A reactive power	kvar	2+3 00.000	With indicator of “-”when reverse
62	Phase B reactive power	kvar	2+3 00.000	With indicator of “-”when reverse

63	Phase C reactive power	kvar	2+3 00.000	With indicator of "-" when reverse
64	Total apparent power	kva	2+3 00.000	
65	Phase A apparent power	kva	2+3 00.000	
66	Phase B apparent power	kva	2+3 00.000	
67	Phase C apparent power	kva	2+3 00.000	
68	Total frequency	Hz	2+1 00.0	
69	Phase A frequency	Hz	2+1 00.0	
70	Phase B frequency	Hz	2+1 00.0	
71	Phase C frequency	Hz	2+1 00.0	
72	Total power factor		1+3 0.000	With capacitive 'C' and inductive 'L', with '-' (based on active power)
73	Phase A power factor		1+3 0.000	With capacitive 'C' and inductive 'L', with '-' (based on active power)
74	Phase B power factor		1+3 0.000	With capacitive 'C' and inductive 'L', with '-' (based on active power)
75	Phase C power factor		1+3 0.000	With capacitive 'C' and inductive 'L', with '-' (based on active power)

**Long press the 3 seconds of *Left button* switch the display page: Scroll display page->A-phase energy page->B-phase energy page->C-phase energy page->Information page->scroll page**

### LCD phase energy display page of phase A B and C

Page	Content	Unit	Format	Remark
1	Total active energy	kWh	6+2 000000.00	
2	Forward active energy	kWh	6+2 000000.00	
3	Reverse active energy	kWh	5+2 00000.00	With indicator of "-"
4	T1 Total active energy	kWh	6+2 000000.00	
5	T1 Forward active energy	kWh	6+2 000000.00	
6	T1 Reverse active energy	kWh	5+2 00000.00	With indicator of "-"

7	T2 Total active energy	kWh	6+2 000000.00	
8	T2 Forward active energy	kWh	6+2 000000.00	
9	T2 Reverse active energy	kWh	5+2 00000.00	With indicator of “-”
10	T3 Total active energy	kWh	6+2 000000.00	
11	T3 Forward active energy	kWh	6+2 000000.00	
12	T3 Reverse active energy	kWh	5+2 00000.00	With indicator of “-”
13	T4 Total active energy	kWh	6+2 000000.00	
14	T4 Forward active energy	kWh	6+2 000000.00	
15	T4 Reverse active energy	kWh	5+2 00000.00	With indicator of “-”
16	Total reactive energy	kvarh	6+2 000000.00	
17	Forward reactive energy	kvarh	6+2 000000.00	
18	Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
19	The first quadrant reactive power	kvarh	6+2 000000.00	
20	The second quadrant reactive power	kvarh	6+2 000000.00	
21	The third quadrant reactive power	kvarh	6+2 000000.00	
22	The forth quadrant reactive power	kvarh	6+2 000000.00	
23	T1 Total reactive energy	kvarh	6+2 000000.00	
24	T1 Forward reactive energy	kvarh	6+2 000000.00	
25	T1 Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
26	T2 Total reactive energy	kvarh	6+2 000000.00	
27	T2 Forward reactive energy	kvarh	6+2 000000.00	
28	T2 Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
29	T3 Total reactive energy	kvarh	6+2 000000.00	
30	T3 Forward reactive energy	kvarh	6+2 000000.00	
31	T3 Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
32	T4 Total reactive energy	kvarh	6+2 000000.00	
33	T4 Forward reactive energy	kvarh	6+2 000000.00	
34	T4 Reverse reactive energy	kvarh	5+2 00000.00	With indicator of “-”
35	Active energy can be cleared	kWh	6+2 000000.00	
36	Forward active energy can be cleared	kWh	6+2 000000.00	
37	Reverse active energy can be cleared	kWh	5+2 00000.00	With indicator of “-”
38	Reactive energy can be cleared	kvarh	6+2 000000.00	
39	Forward reactive energy can be cleared	kvarh	6+2 000000.00	
40	Reverse reactive energy can be cleared	kvarh	5+2 00000.00	With indicator of “-”
41	Maximum active power demand	kW	2+3 00.000	



42	Forward maximum active power demand	kW	2+3 00.000	
43	Reverse maximum active power demand	kW	2+3 00.000	With indicator of "-"
44	Maximum reactive power demand	kvar	2+3 00.000	
45	Forward maximum reactive power demand	kvar	2+3 00.000	
46	Reverse maximum reactive power demand	kvar	2+3 00.000	With indicator of "-"

**Long press the 3 seconds of *Left button* switch the display page: Scroll display page->A-phase energy page->B-phase energy page->C-phase energy page->Information page->scroll page**

### LCD information page

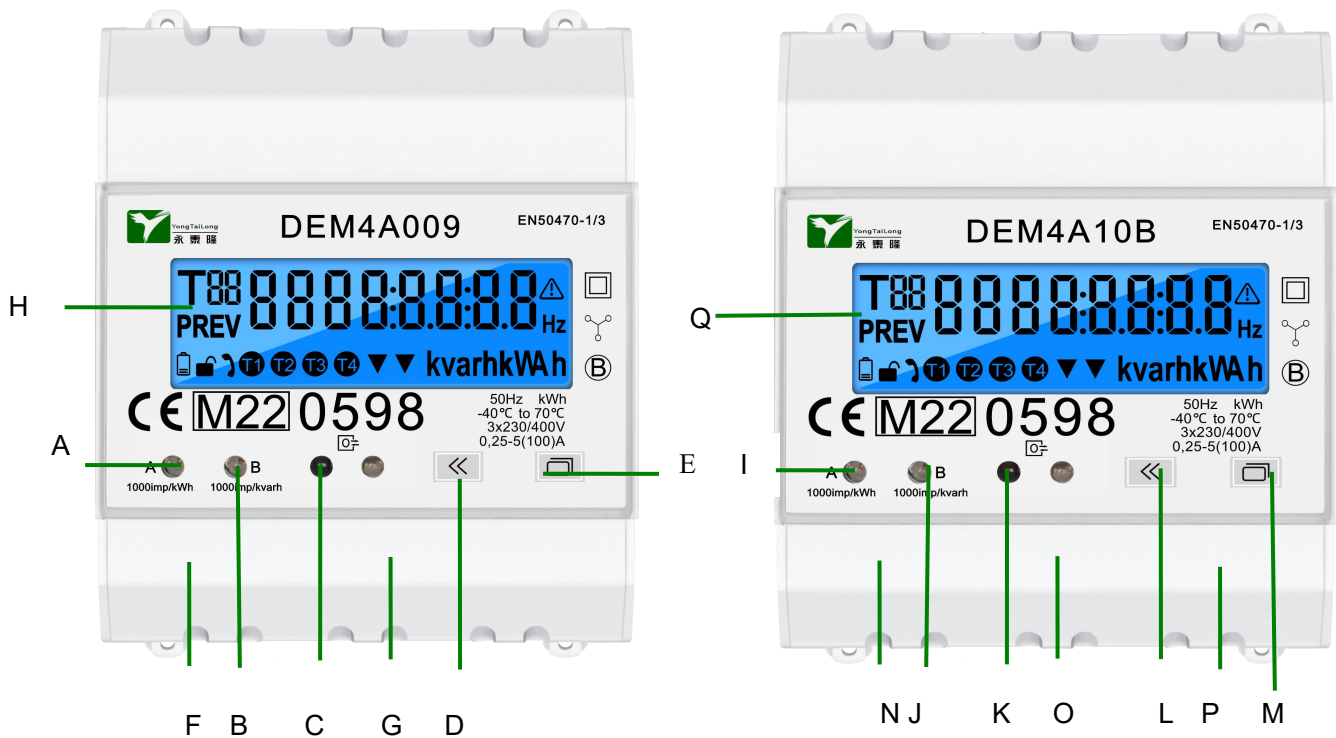
Page	Content	Unit	Description	Remark
1	Serial number		000000000000,12 digit	The same DLT 645 ID
2	Modbus ID		1-247	
3	Baud rate		9600/19200/ 38400/115200	
4	Parity		Odd/Even/None	
5	Stop bit		1/2bit	
6	Scroll display time	S	5-99 seconds, 0 disables scroll display	
7	Combined code		1=Total=Forward 2=Total=Reverse 3=Total=Forward+Reverse 4=Total=Forward-Reverse	
8	Demand Type and Period		0= interval 1= slip	Period,1-30 minutes,default 15minutes
9	SO output		Example: 800, 1000, 1600, etc. above 100,divisible by 96000	
10	Date		DDMMYY	
11	Time		HHMMSS	
12	Version number		U101	
13	Checksum		XXXX	

### LCD setting page

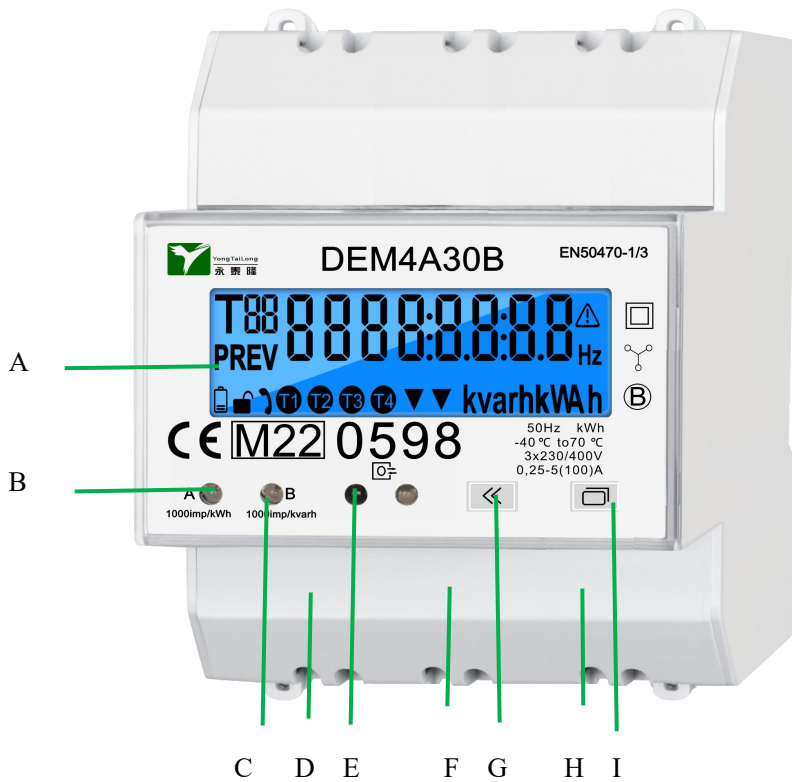
Page	Content	Unit	Description	Remark
1	Modbus ID		1-247	
2	Baud rate		9600/19200/38400/115200	
3	Parity		Odd/Even/None	
4	Stop bit		1/2bit	
5	Scrolling time		5-99 seconds, 0 disables scroll display	
6	Combined code	S	1=Total=Forward 2=Total=Reverse 3=Total=Forward+Reverse 4=Total=Forward-Reverse	
7	Demand Type and Period		type 0 interval 1 slip, period 1-30 minutes	
8	SO constant		800, 1000, 1600, etc. above 100, divisible by 96000	
9	Date		DDMMYY	
10	Time		HHMMSS	
11	Reset the active re-settable energy		After long press, the total (total, forward and reverse) and each phase (total, forward and reverse) can be reset, and the corresponding data can be selected to reset	Press the right button for more than 3 seconds to input the correct password
12	Reset the reactive re-settable energy		After long press, the total (total, forward and reverse) and split-phase (total, forward and reverse) can be reset, and the corresponding data can be selected to reset	
13	Reset the active maximum demand		After long press, the total (total, forward and reverse) and split-phase (total, forward and reverse) can be reset, and the corresponding data can be selected to reset	
14	Reset the reactive maximum demand		After long press, the total (total, forward and reverse) and split-phase (total, forward and reverse) can be reset, and the	

			corresponding data can be selected to reset
15	password		4 bits
16	Quit		exit settings

### 4. Description



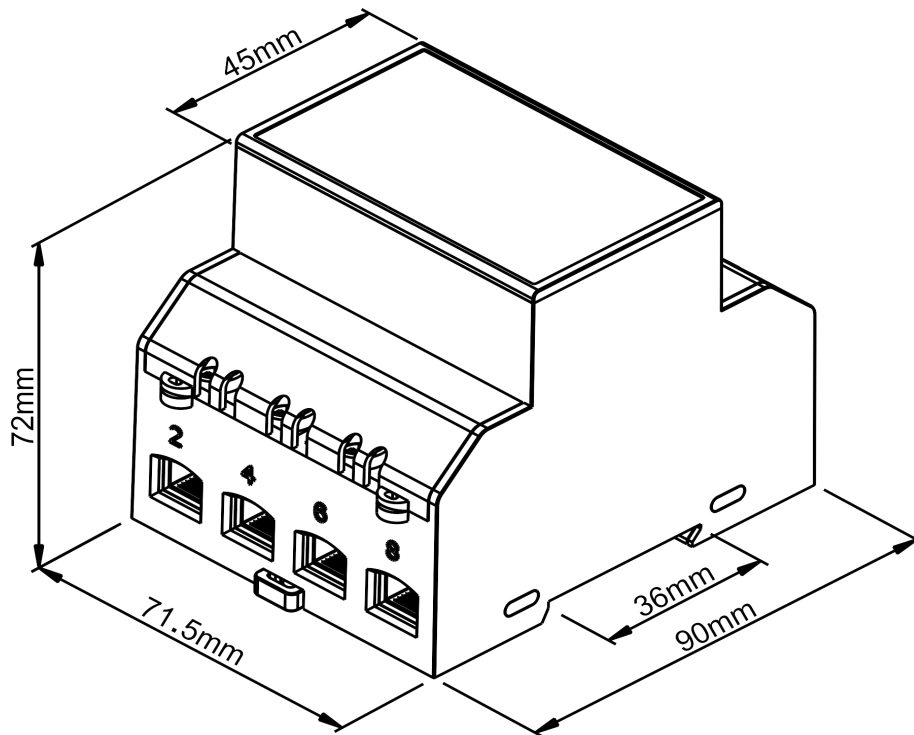
DEM4A009	DEM4A00B/00B-1/10B
A Impulse indication for active energy	I Impulse indication for active energy
B Impulse indication for reactive energy	J Impulse indication for reactive energy
C IR	K IR
D Left Button for page scrolling	L Left Button for page scrolling
E Right Button for page setting and scrolling	M Right Button for page setting and scrolling
F SO1 output for active energy (default)	N SO1 output for active energy (default)
G SO2 output for reactive energy (default)	O SO2 output for reactive energy (default)
H LCD screen	P RS485 output
	Q LCD screen



**DEM4A20B/30B**

- A LCD screen
- B Impulse indication for active energy
- C Impulse indication for reactive energy
- D SO output
- E Optical port
- F External Signal input
- G Left Button for data checking
- H RS485 output
- I Right button for data checking and data setting

**5. Meter Dimensions**



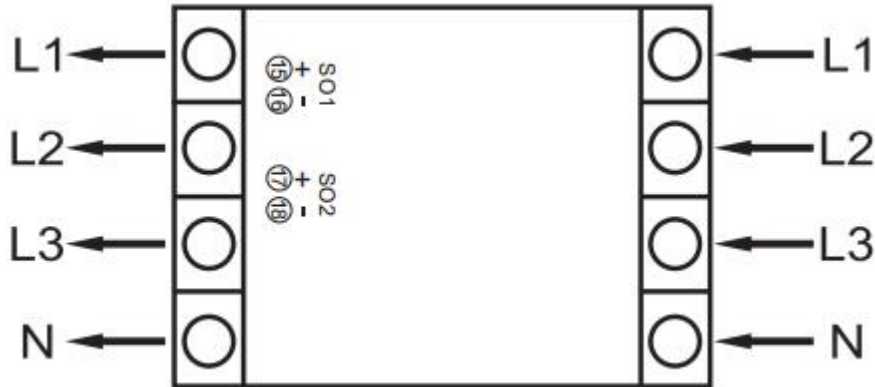
**MID**

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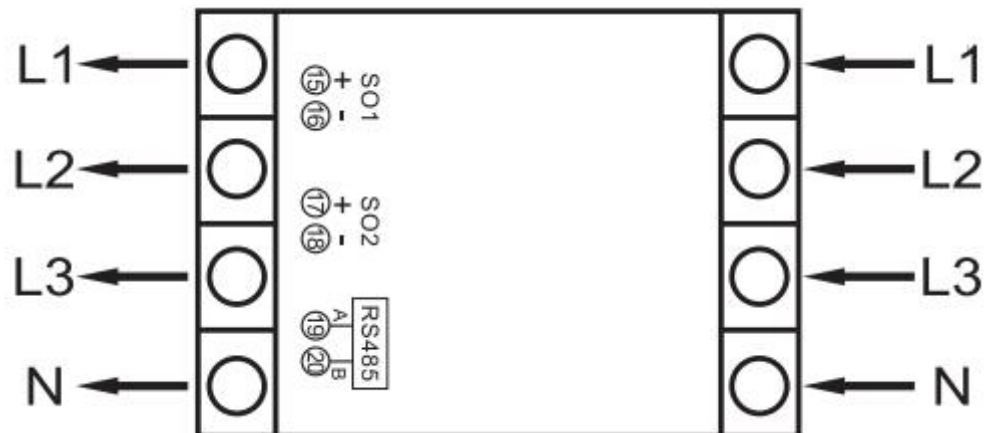
## 6. Wiring Connection

### DEM4A009



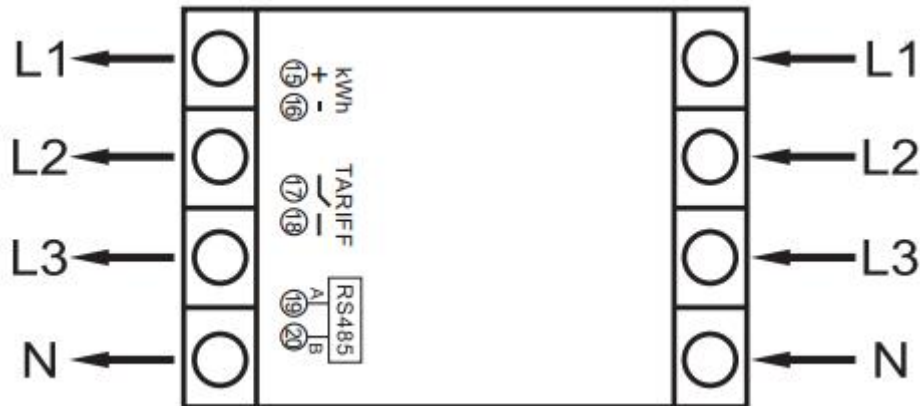
**Note:** 15 16:SO1 is SO output for kWh or Active/reactive forward kWh optional  
17 18:SO2 is SO output for kvarh or Active/reactive reverse kWh optional

### DEM4A00B/10B



**Note:** 15 16:SO1 is SO output for kWh or Active/reactive forward kWh optional  
17 18:SO2 is SO output for kvarh or Active/reactive reverse kWh optional  
19 20: RS485 output

**DEM4A20B/30B**

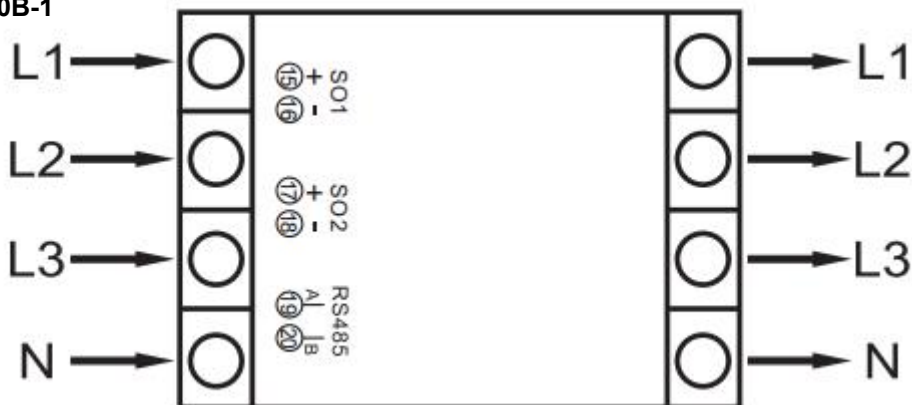


**Note:** 15 16:SO is SO output for kWh

17 18:for external signal input ,important notice :no high voltage input !

19 20: RS485 output

**DEM4A00B-1**



**Note:** 15 16:SO1 is SO output for kWh or Active/reactive forward kWh optional

17 18:SO2 is SO output for kvarh or Active/reactive reverse kWh optional

19 20: RS485 output

## 7. Safety Instructions

- Case is sealed, do not open the meter. No warranty if case is opened.
- The meter should be installed indoor or in the outdoor electric meter box.
- The meter is intended to be installed in a Mechanical Environment 'M1', with Shock and

Vibrations of low significance, as per 2014/32/EU Directive.

- The meter is intended to be installed in Electromagnetic Environment 'E2', as per 2014/32/EU Directive.

### ***Information for Your Own Safety***

This manual does not contain all of the safety measures for operation of this equipment (module, device) because special operating conditions, local code requirements or local regulations may necessitate further measures. However, it does contain information which must be adhered to for your own personal safety and to avoid damage to the equipment. This information is highlighted by a warning triangle with an exclamation mark or a lightning bolt depending on the severity of the warning.



#### **Warning**

Means that failure to observe the instruction can result in death, serious injury or considerable material damage.



#### **Caution**

Means hazard of electric shock and failure to take the necessary safety precautions will result in death, serious injury or considerable material damage.

### ***Qualified personnel***

Installation and operation of this equipment described in this manual may only be performed by qualified personal.

Only people that are authorized to install, connect and use this equipment and have the proper knowledge about labeling and grounding electrical equipment and circuits and can do so according to safety and regulatory standards are considered qualified personnel in the manual.

### ***Use for the intend purpose***

The equipment (device, module) may only be used for the application cases specified in the catalog and the user manual and only in connection with devices and components recommended and approved by YTL.

### ***Exclusion of liability***

We have checked the contents of this publication and every effort has been made to ensure that the descriptions are as accurate as possible. However, deviations from the description cannot be completely ruled out, so that no liability can be accepted for any errors or omissions in the information given. The data in this manual is checked regularly and the necessary corrections will be included in subsequent editions. If you have any suggestions, pls let us know.

### ***Subject to technical modifications without notice.***

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### ***General Warning***

After removing the packaging make sure the integrity of the unit. If in doubt don't use the equipment and contact technical staff.

Mounting of electric appliances must be carried out only by skilled electricians. It is imperative to observe the generally applicable safety measures.

In case of failure and /or malfunctioning of the device, turn off it. For any repair only contact technical staff. Failure to comply with the above may compromise the device safety.

### ***Warranty***

The manufacturer will repair or exchange the products while the lead seal is still exited, within 18 months, when discovering the products not accordance with the technical specification.



## Technical support

*For any problems of our products please contact:*

Zhejiang Yongtailong Electronic Co.,Ltd

No. 320 Tongsheng road, Tongxiang Zhejiang, China

Post:314500

Tel: 0573-88105559

Fax: 0573-8810042

Web: [www.ytl-e.com](http://www.ytl-e.com)

