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Data Sheet

DEM4A-D Series

DIN Rail Multifunctional Three phase M-BUS Power Meter

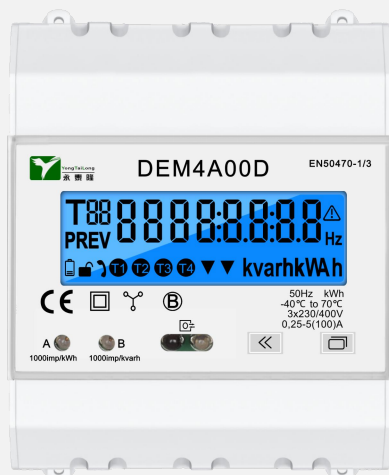
DEM4A00D:Basic Type, IR + Mbus + 2 SO output (variable constant), with different measurements way. No battery

DEM4A10D:IR + Mbus+ 2 SO output (variable constant)+ Multi-tariff function with different measurements.With battery

DEM4A20D:IR + Mbus + 1SO output (variable constant)with different measurements.External signal input.No battery

DEM4A30D:IR + Mbus+ 1SO output (variable constant)+ Multi-tariff function,with different measurements.External signal input.
With battery

More options to meet different requirements from market !



Three Phase Multifunctional Meter

The DEM4A-D Mbus 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-D Series M-BUS Three Phase Din Rail kWh Meter

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1.Specifications

Technical Parameters

Content	Parameters
Standard:	EN50470-1/3
Rated Voltage:	3*230(400)V±20%
Rated Current:	0,25-5(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:	<1W / <10VA
Average Humidity:	≤75% (Non Condensing)
Maximum Humidity:	≤95%
Start Current:	0.004Ib
Case Protection	IP51 indoor
Protect Class	II

2.Meter Series Details

Type	DEM4A0D	DEM4A10D	DEM4A20D	DEM4A30D
Impulse Constant	1000imp/kWh 1000imp/kvarh			
Communication	IR,Mbus			
SO output	SO1 is SO output for kWh(default) or Active/reactive forward kWh optional 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		External Signal input port	
Pulse width	Changeable pulse width according to current, the bigger the current the shorter the pulse width			
Backlight	Blue			
Li-Battery	N/A	YES	N/A	YES
Multi-tariff	N/A	YES	N/A	YES
Measurement Mode	1.total =forward 2.Total=reverse 3.Total =forward +reverse (default) 4.Total=Forward-Reverse			
Button	Touch button			
Button function	Left button:Page turning, Right button: Page turning,setting information display			
Default setting	9600/EVEN /8/1			
Measurement Mode setting	Mbus or Button			

3. LCD Display layout

Different values with different indicator



DEM4A-D series M-BUS				
LCD Scrolling Display Page				
Page	Content	Unit	Format	Remark
1	Total active energy	kWh	6+2(7+1)kwh	
2	Forward active energy	kWh	6+2(7+1)kwh	
3	Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
4	T1 Total active energy	kWh	6+2(7+1)kwh	
5	T1 Forward active energy	kWh	6+2(7+1)kwh	
6	T1 Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
7	T2 Total active energy	kWh	6+2(7+1)kwh	
8	T2 Forward active energy	kWh	6+2(7+1)kwh	
9	T2 Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
10	T3 Total active energy	kWh	6+2(7+1)kwh	
11	T3 Forward active energy	kWh	6+2(7+1)kwh	
12	T3 Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
13	T4 Total active energy	kWh	6+2(7+1)kwh	
14	T4 Forward active energy	kWh	6+2(7+1)kwh	
15	T4 Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
16	Total reactive energy	kvarh	6+2(7+1)kvarh	
17	Forward reactive energy	kvarh	6+2(7+1)kvarh	
18	Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
19	The first quadrant reactive	kvarh	6+2(7+1)kvarh	

	energy			
20	The second quadrant reactive energy	kvarh	6+2(7+1)kvarh	
21	The third quadrant reactive energy	kvarh	6+2(7+1)kvarh	
22	The forth quadrant reactive energy	kvarh	6+2(7+1)kvarh	
23	T1 Total reactive energy	kvarh	6+2(7+1)kvarh	
24	T1 Forward reactive energy	kvarh	6+2(7+1)kvarh	
25	T1 Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
26	T2 Total reactive energy	kvarh	6+2(7+1)kvarh	
27	T2 Forward reactive energy	kvarh	6+2(7+1)kvarh	
28	T2 Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
29	T3 Total reactive energy	kvarh	6+2(7+1)kvarh	
30	T3 Forward reactive energy	kvarh	6+2(7+1)kvarh	
31	T3 Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
32	T4 Total reactive energy	kvarh	6+2(7+1)kvarh	
33	T4 Forward reactive energy	kvarh	6+2(7+1)kvarh	
34	T4 Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
35	Re-settable Active energy	kWh	6+2(7+1)kwh	
36	Forward active energy can be cleared	kWh	6+2(7+1)kwh	
37	Reverse active energy can be cleared	kWh	5+2(6+1)(7)kwh	With indicator of “-”
38	Re-settable Reactive energy	kvarh	6+2(7+1)kvarh	
39	Forward reactive energy can be cleared	kvarh	6+2(7+1)kvarh	
40	Reverse reactive energy can be cleared	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
41	Maximum active power demand	kW	2+3 kwh	
42	Forward maximum active power demand	kW	2+3 kwh	
43	Reverse maximum active power demand	kW	2+3 kwh	With indicator of “-”
44	Maximum reactive power demand	kvar	2+3 kvarh	
45	Forward maximum reactive power demand	kvar	2+3 kvarh	
46	Reverse maximum reactive power demand	kvar	2+3 kvarh	With indicator of “-”
47	A-N voltage	V	3+2 V	
48	B-N voltage	V	3+2 V	
49	C-N voltage	V	3+2 V	
50	A-B voltage	V	3+2 V	

51	<i>B-C voltage</i>	V	3+2 V	
52	<i>C-A voltage</i>	V	3+2 V	
53	<i>Phase A current</i>	A	3+3 A	With indicator of “-”when reverse
54	<i>Phase B current</i>	A	3+3 A	With indicator of “-”when reverse
55	<i>Phase C current</i>	A	3+3 A	With indicator of “-”when reverse
56	Total active power	kw	2+3 kw	With indicator of “-”when reverse
57	Phase A active power	kw	2+3 kw	With indicator of “-”when reverse
58	Phase B active power	kw	2+3 kw	With indicator of “-”when reverse
59	Phase C active power	kw	2+3 kw	With indicator of “-”when reverse
60	Total reactive power	kvar	2+3 kvar	With indicator of “-”when reverse
61	Phase A reactive power	kvar	2+3 kvar	With indicator of “-”when reverse
62	Phase B reactive power	kvar	2+3 kvar	With indicator of “-”when reverse
63	Phase C reactive power	kvar	2+3 kvar	With indicator of “-”when reverse
64	Total apparent power	kva	2+3 kva	
65	Phase A apparent power	kva	2+3 kva	
66	Phase B apparent power	kva	2+3 kva	
67	Phase C apparent power	kva	2+3 kva	
68	Total frequency	Hz	2+1Hz	
69	<i>Phase A frequency</i>	Hz	2+1Hz	
70	<i>Phase B frequency</i>	Hz	2+1Hz	
71	<i>Phase C frequency</i>	Hz	2+1Hz	
72	<i>Total power factor</i>		1+3	With capacitive 'C' and inductive 'L', with '-' (based on active power)
73	<i>Phase A power factor</i>		1+3	With capacitive 'C' and inductive 'L', with '-' (based on

				active power)
74	Phase B power factor		1+3	With capacitive 'C' and inductive 'L', with '-' (based on active power)
75	Phase C power factor		1+3	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

LCD phase energy display page of phase A B and C

Page	Content	Unit	Format	Remark
1	Total active energy	kWh	6+2(7+1)kwh	
2	Forward active energy	kWh	6+2(7+1)kwh	
3	Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
4	T1 Total active energy	kWh	6+2(7+1)kwh	
5	T1 Forward active energy	kWh	6+2(7+1)kwh	
6	T1 Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
7	T2 Total active energy	kWh	6+2(7+1)kwh	
8	T2 Forward active energy	kWh	6+2(7+1)kwh	
9	T2 Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
10	T3 Total active energy	kWh	6+2(7+1)kwh	
11	T3 Forward active energy	kWh	6+2(7+1)kwh	
12	T3 Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
13	T4 Total active energy	kWh	6+2(7+1)kwh	
14	T4 Forward active energy	kWh	6+2(7+1)kwh	
15	T4 Reverse active energy	kWh	5+2(6+1)(7)kwh	With indicator of “-”
16	Total reactive energy	kvarh	6+2(7+1)kvarh	
17	Forward reactive energy	kvarh	6+2(7+1)kvarh	
18	Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
19	The first quadrant reactive energy	kvarh	6+2(7+1)kvarh	
20	The second quadrant reactive energy	kvarh	6+2(7+1)kvarh	
21	The third quadrant reactive energy	kvarh	6+2(7+1)kvarh	

22	The forth quadrant reactive energy	kvarh	6+2(7+1)kvarh	
23	T1 Total reactive energy	kvarh	6+2(7+1)kvarh	
24	T1 Forward reactive energy	kvarh	6+2(7+1)kvarh	
25	T1 Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
26	T2 Total reactive energy	kvarh	6+2(7+1)kvarh	
27	T2 Forward reactive energy	kvarh	6+2(7+1)kvarh	
28	T2 Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
29	T3 Total reactive energy	kvarh	6+2(7+1)kvarh	
30	T3 Forward reactive energy	kvarh	6+2(7+1)kvarh	
31	T3 Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
32	T4 Total reactive energy	kvarh	6+2(7+1)kvarh	
33	T4 Forward reactive energy	kvarh	6+2(7+1)kvarh	
34	T4 Reverse reactive energy	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
35	Active energy can be cleared	kWh	6+2(7+1)kwh	
36	Forward active energy can be cleared	kWh	6+2(7+1)kwh	
37	Reverse active energy can be cleared	kWh	5+2(6+1)(7)kwh	With indicator of “-”
38	Reactive energy can be cleared	kvarh	6+2(7+1)kvarh	
39	Forward reactive energy can be cleared	kvarh	6+2(7+1)kvarh	
40	Reverse reactive energy can be cleared	kvarh	5+2(6+1)(7)kvarh	With indicator of “-”
41	Maximum active power demand	kW	2+3 kwh	
42	Forward maximum active power demand	kW	2+3 kwh	
43	Reverse maximum active power demand	kW	2+3 kwh	With indicator of “-”
44	Maximum reactive power demand	kvar	2+3 kvarh	
45	Forward maximum reactive power demand	kvar	2+3 kvarh	
46	Reverse maximum reactive power demand	kvar	2+3 kvarh	With indicator of “-”

Long press the 3 seconds of *Left button* switch the display page: Scroll display page B-phase engergy page

LCD information page

Page	Content	Unit	Description	Remark
1	Serial number		12 digs, 000000000000	
2	MBUS ID		0-250	
3	Baud rate		300/600/1200/2400/4800/9600	

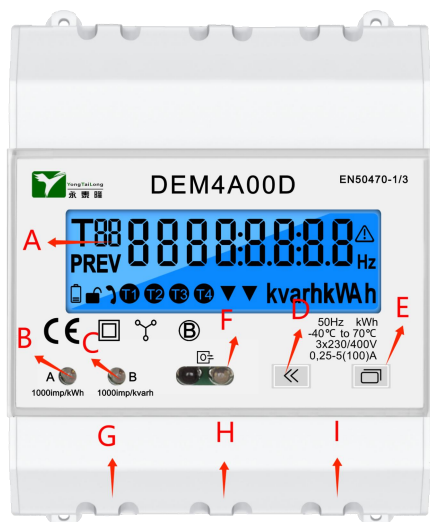
4	Parity		Odd/Even/None	
5	Stop bit		1/2bit	
6	Scroll display time	S	5-99 seconds, 0 disables scroll display	
7	Combined code		1=Total=Forward 2=Total=Reverse 3=Total=Forward+Reverse 4=Total=Forward-Reverse	
8	Demand Type and Period		0= interval 1= slip	Period, 1-30 minutes, default 15minutes
9	SO output			
10	Date		DDMMYY	
11	Time		HHMMSS	
12	Version number		U101	
13	Checksum		XXXX	

LCD setting page

Page	Content	Unit	Description	Remark
1	MBUS ID		0-250	
2	Baud rate		300/600/1200/2400/4800/9600	
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			
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	Press the right button for more than 3 seconds to input the correct password

			corresponding data can be selected to reset	
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	

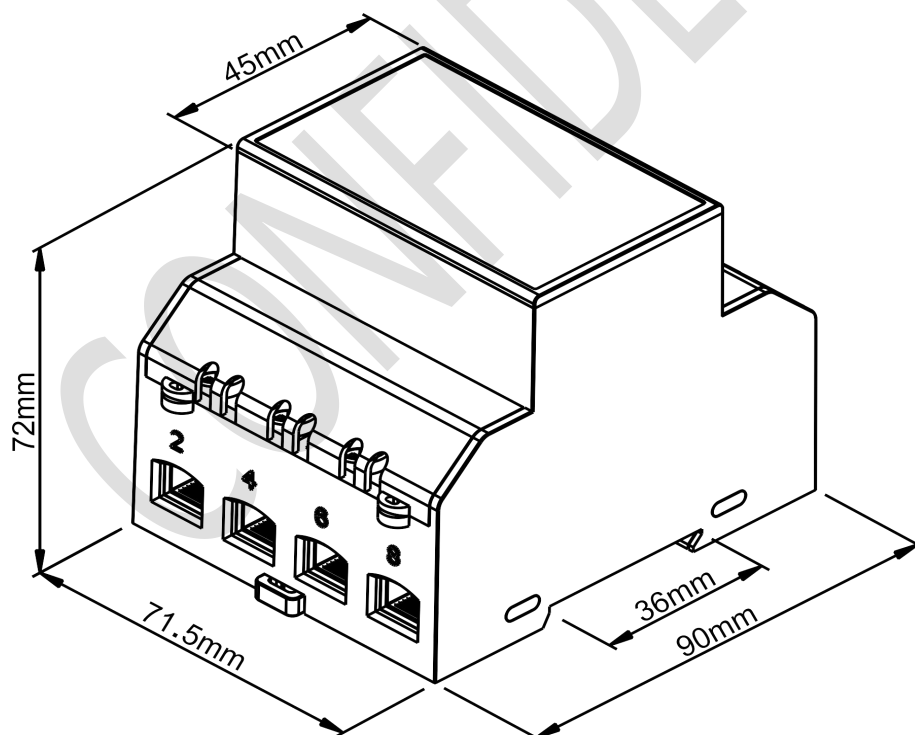
4. Description



DEM4A00D/10D/20D/30D

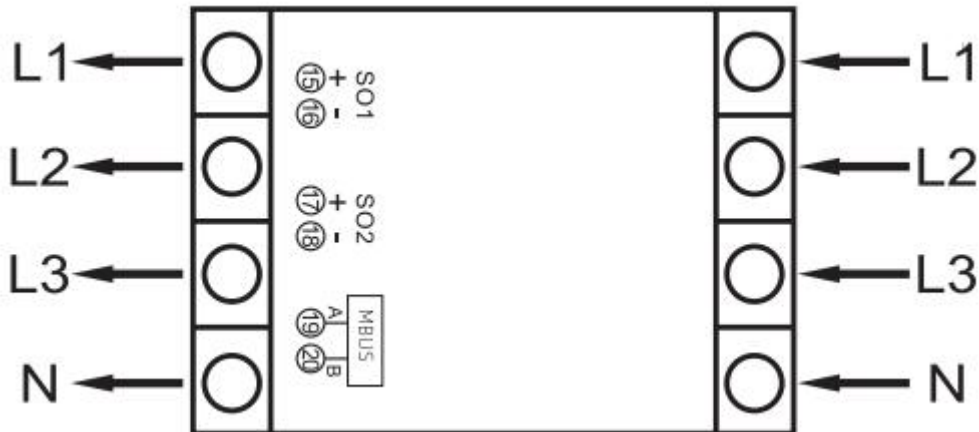
- | | |
|---|--|
| A | LCD screen |
| B | Impulse indication for active energy |
| C | Impulse indication for reactive energy |
| D | Button - Left Button |
| E | Button - Right Button |
| F | infrared interface |
| G | SO1 pulse output |
| H | SO2 pulse output for DEMA00D/10D
External signal input For DEM4D20D/30D |
| I | M-BUS communication interface |

5. Meter Dimensions



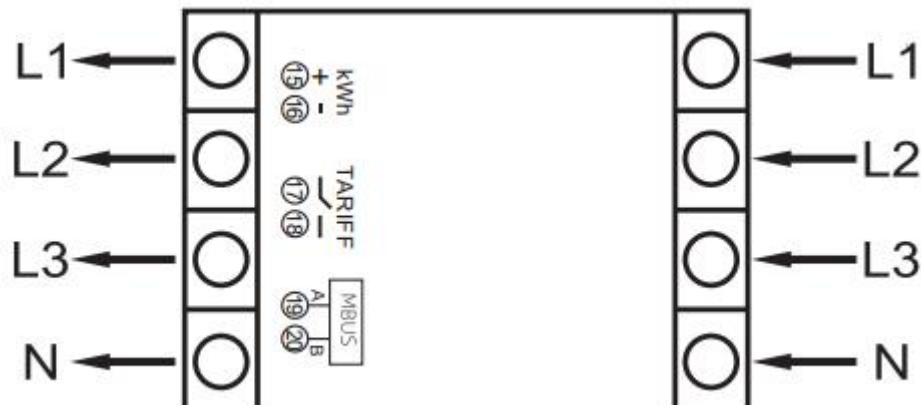
6. Wiring Connection

DEM4A00D/10D



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: MBUS output

DEM4A20D/30D



Note: 15 16:SO is SO output for kWh
17 18:for external signal input ,important notice :no high voltage input !
19 20: MBUS 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 existed, within 18 months, when discovering the products not accordance with the technical specification.

Technical support

For any problems of our products please contact:

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