

Product Ref: **MCGADEM1A001**

# Data Sheet

## DEM1A Series

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

**DEM1A001:** Basic Type, no communication , SO output (variable constant),with different measurements way

**DEM1A002:** RS485 MODBUS/DLT645 dual protocol with different measurements way

**DEM1A102:** RS485 MODBUS/DLT645 dual protocol, Multi-tariff function,with different measurements way

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



## Single Phase Multifunctional Meter

The DEM1A Series Digital Power Meter works directly connected to a maximum load 100A AC circuit

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

**MID**

# 1. Specifications

## Technical Parameters

Content	Parameters
Standard:	EN50470-1/3
Rated Voltage:	230V
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, 0,25-5(80)A,0,25-5(100)A
Impulse Constant:	1000 imp/kWh
Frequency:	50Hz/60Hz
Accuracy Class:	B
LCD Display:	LCD 5+2 = 99999.99kWh
Working Temperature:	-25~70°C
Storage Temperature:	-30~70°C
Power Consumption:	<12VA <1W
Average Humidity:	≤75% (Non Condensing)
Maximum Humidity:	≤95%
Start Current:	0.004Ib
Case Protection	IP51 indoor

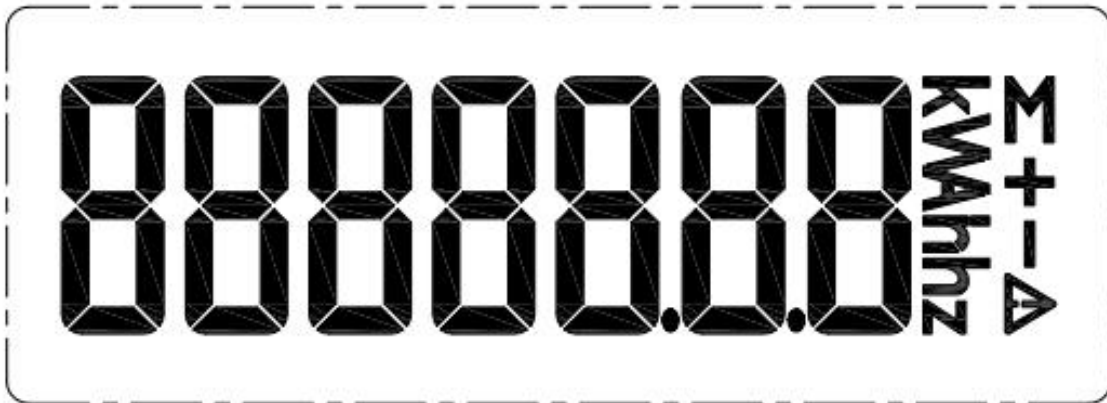
## 2.Meter Series Details

Type	DEM1A001	DEM1A002	DEM1A102
Software Version	V101	V101	V101
CRC	5A8E	B6C9	6B8D
Impulse Constant	1000imp/kWh	1000imp/kWh	1000imp/kWh
Communication	N/A	RS485 Modbus/DLT645	RS485 Modbus/DLT645
Baud rate	N/A	9600\19200\38400\115200	9600\19200\38400\115200
SO output	SO1 is SO output for kWh(default) or Active/reactive forward kWh optional with variable constant 100-2500imp/kWh Divisible by 10000 SO2 is SO output for kvarh (default) or Active/reactive reverse kWh optional with variable constant 100-2500imp/kvarh Divisible by 10000	N/A	N/A
Pulse width	SO:100-1000:100ms SO:1250-2500:30ms	N/A	N/A
Backlight	Blue	Blue	Blue
Li-Battery	N/A	N/A	YES
Multi-tariff	N/A	N/A	YES
Measurement Mode	1-total =forward 2-Total=reverse 3-Total =forward +reverse (default) 4-Total=Forward-Reverse	1-total =forward 2-Total=reverse 3-Total =forward +reverse (default) 4-Total=Forward-Reverse	1-total =forward 2-Total=reverse 3-Total =forward +reverse (default) 4-Total=Forward-Reverse
Button	Touch button	Touch button	Touch button
Button function	Page turning, setting, information display	Page turning, setting, information display	Page turning, setting, information display
Default setting	1000imp/kWh,100ms 1000imp/kvarh,100ms	9600/NONE /8/1	9600/NONE /8/1

Measurement Mode setting	Button	RS485 or Button	RS485 or Button
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### 3. LCD Display layout

*Different values with different indicators*



DEM1A001/DEM1A002/DEM1A102				
LCD Scrolling Display Page				
Page	Content	Unit	Format	Remark
1	Total active energy	kWh	5+2 00000.00	
2	Forward active energy	kWh	5+2 00000.00	
3	Reverse active energy	kWh	5+2 00000.00	With indicator of "-"
4	Total reactive energy	kWh	5+2 00000.00	
5	T1 Total active energy	kWh	5+2 00000.00	
6	T1 Total reactive energy	kVArh	5+2 00000.00	
7	T2 Total active energy	kWh	5+2 00000.00	
8	T2 Total reactive energy	kVArh	5+2 00000.00	
9	T3 Total active energy	kWh	5+2 00000.00	Only available in DEM1A102
10	T3 Total reactive energy	kVArh	5+2 00000.00	
11	T4 total active energy	kWh	5+2 00000.00	
12	T4 Total reactive energy	kVArh	5+2 00000.00	
13	Resettable Active energy	kWh	5+2 00000.00	
14	Resettable <i>Reactive energy</i>	kVArh	5+2 00000.00	
15	<i>Voltage</i>	V	3+2 000.00	

16	<i>Current</i>	A	3+2 000.00	With direction indicator
17	<i>Active power</i>	W	5+0 00000	
18	<i>Reactive power</i>	var	5+0 00000	
19	<i>Apparent power</i>	VA	5+0 00000	
20	<i>Power factor</i>	PF	1+2 0.00	With direction and CL
21	<i>Frequency</i>	Hz	2+2 00.00	
22	<i>Forward Active demand</i>	W	5+0 00000	
23	Forward Maximum active demand	W	5+0 00000	
24	<i>Reverse Active demand</i>	W	5+0 00000	
25	Reverse Maximum active demand	W	5+0 00000	
26	<i>Forward Reactive power demand</i>	var	5+0 00000	
27	<i>Forward Maximum reactive demand</i>	var	5+0 00000	
28	<i>Reverse Reactive demand</i>	var	5+0 00000	
29	<i>Reverse Maximum reactive demand</i>	var	5+0 00000	

**Long press button for more than 3 seconds at any Scrolling display page to enter the information display page**

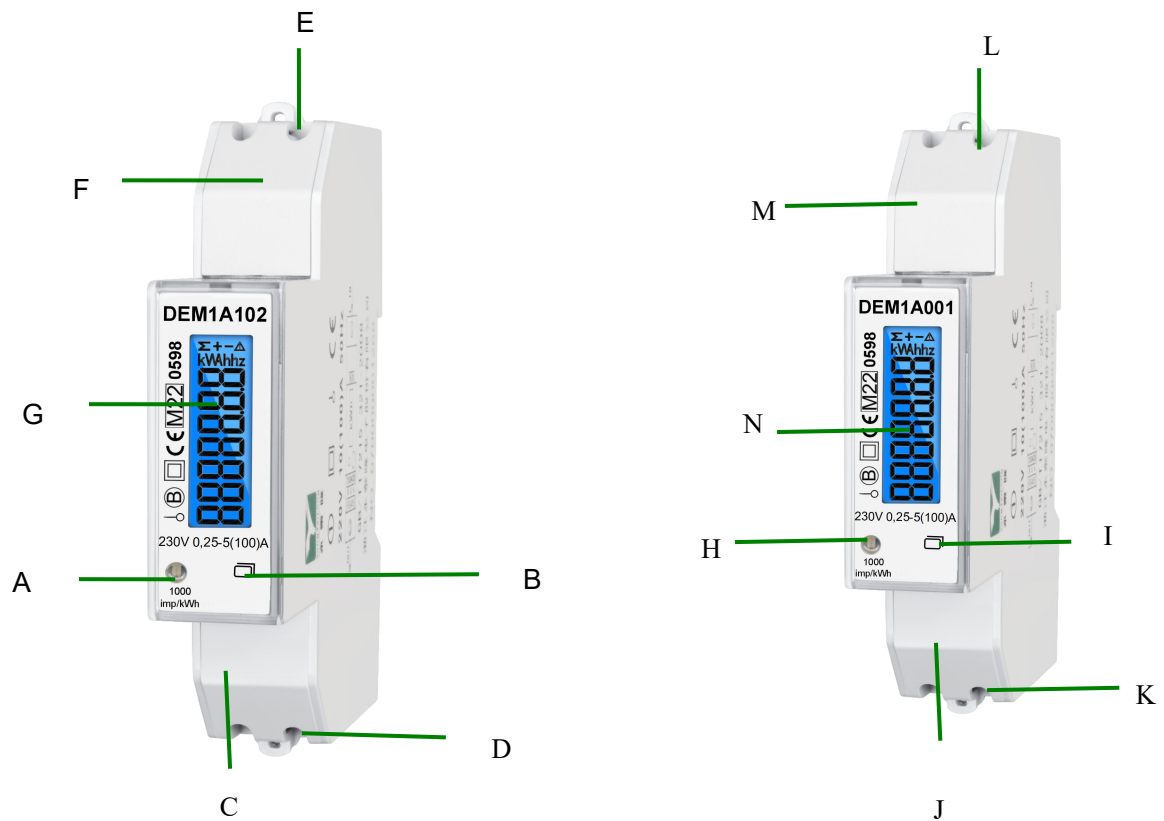
### LCD Information display page

Page	Content	Unit	Format	Remark
1	SETUP (Long press and enter the password to enter the setup page)			
2	12-digit serial number of the meter		000000000000	Also equal to DLT645 address
3	Communication address		1-247	
4	Baud rate		6=9600 7=19200 8=38400 9=115200	Available in DEM1A002/ DEM1A102
5	Parity		0=None (default) 1=Odd 2=Even	
6	Stop bit		1=1 bit (default) 2=2 bit	
7	Current tariff			
8	Date		DD/MM/YY	Available in DEM1A102 only
9	Time		HH/MM/SS	
10	Scrolling time	S	0-99 seconds	0 prohibits scrolling display:

11	Demand calculation method & cycle		1-30minutes	press to turn pages Default 15minutes
12	Combination code		1-total =forward 2-Total=reverse 3-Total =forward +reverse (default) 4-Total=Forward-Reverse	
13	SO Constant			Default : 1000imp/kWh,100ms 1000imp/kvarh,100ms Available in DEM1A001 only
14	Software version number			
15	CRC code			
<b>LCD Setting Page</b>				
Page	Content	Unit	Format	Remark
1	Communication address		1-247	
2	Baud rate		6=9600 7=19200 8=38400 9=115200	
3	Parity		0=None (default) 1=Odd 2=Even	
4	Stop bit		1=1 bit (default) 2=2 bit	
5	Reset the clear-able active energy	kWh	5+2 00000.00	
6	Reset clear-able reactive energy	kvarh	5+2 00000.00	
7	Reset clear-able maximum active demand	W		
8	Reset clear-able Maximum reactive demand	W		
9	Date		DD/MM/YY	
10	Time		HH/MM/SS	
11	Scrolling time	S	0-99 S	0 prohibits scrolling display: press to turn pages)
12	Demand calculation method &		1-30minutes	Default 15minutes

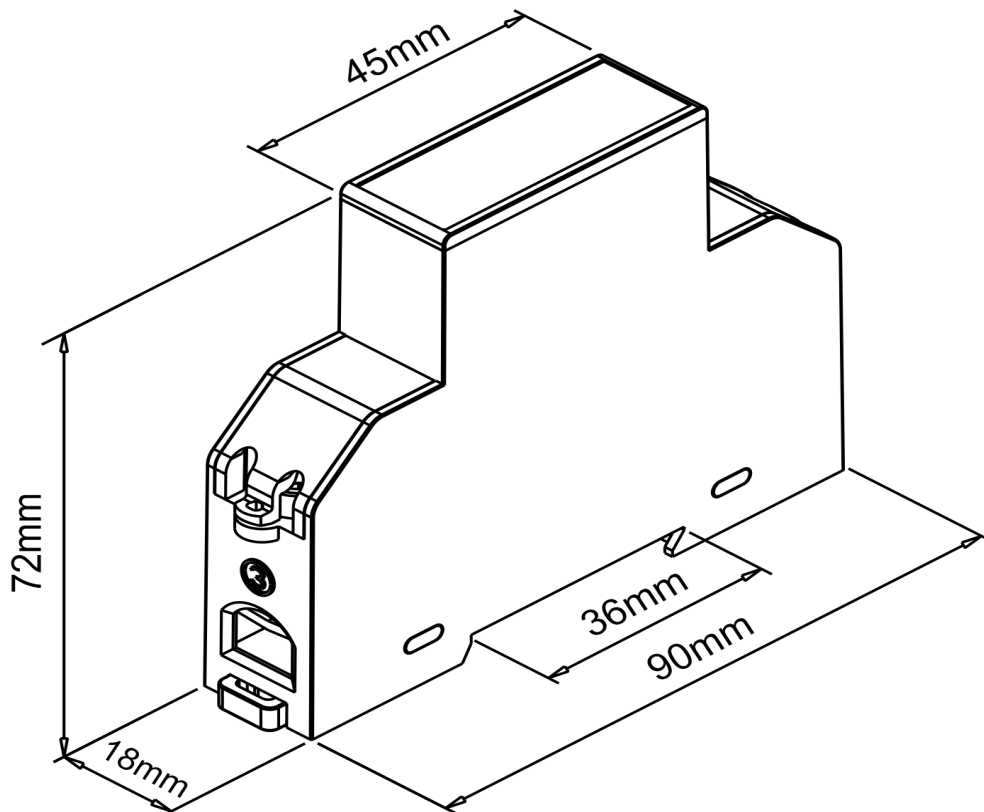
	cycle			
13	Combination code		1-total =forward 2-Total=reverse 3-Total =forward +reverse (default) 4-Total=Forward- Reverse	
14	SO constant		From 100 to 2500, Divisible by 10000	Default : 1000imp/kWh,100ms 1000imp/kvarh,100ms Available in DEM1A001 only
15	password setting			
16	Quit (long press to return to the scrolling display page)			

## 4. Description



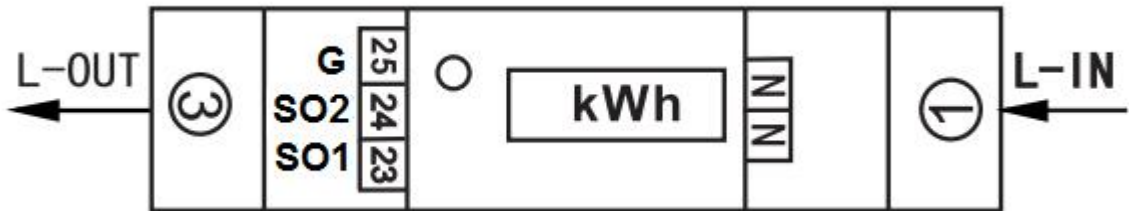
DEM1A002/102		DEM1A001	
A	Impulse indication	H	Impulse indication
B	Button for data checking	I	Button for data checking
C	RS485 Output	J	SO Output
D	L-Out	K	L-Out
E	L-In	L	L-In
F	Neutral Wire	M	Neutral Wire
G	LCD screen	N	LCD screen

## 5. Meter Dimensions



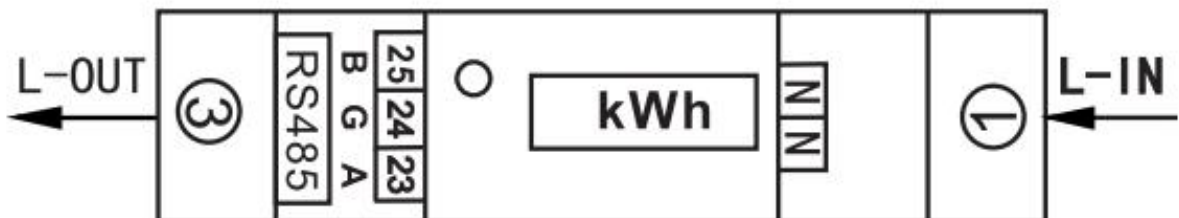
## 6. Wiring Connection

### DEM1A001



**Note:** 23:SO1 is SO output for kWh or Active/reactive forward kWh optional  
24:SO2 is SO output for kvarh or Active/reactive reverse kWh optional  
25:G is for GND  
For Neutral wire, you can connect one N port and connect both.

### DEM1A002/102



**Note:** 23.24.25 is for A+, G, B-.  
If the RS485 communication converter doesn't have G port, no need to connect.  
For Neutral wire, you can connect one N port and connect both.

## 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***

# **MID**

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.