

Zhejiang Yongtailong Electronic Co. , Ltd.

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DEM4K Series

Multi-phase multi-wire CT meter

- DEM4K103: with RS485 communication, DLT/645 and MODBUS-RTU protocol compatibility, RTC rates (default 4 rates) , multiple metering methods
- DEM4K003: with RS485 communication, DLT/645 and MODBUS-RTU protocol compatibility, no rate, multiple metering methods
- DEM4K10A: IR Communications, RTC rates (default 4 rates) , multiple metering methods
- DEM4K00A: IR communication, no rate, multiple metering methods



DEM4I series electronic watt-hour meter maximum load 6A, -(CT ratio) * (VT ratio) maximum support 1000

This meter will be certified MID B + D by SGS UK, proving its accuracy and quality

This model can be used in any secondary billing scenario

Technical specifications

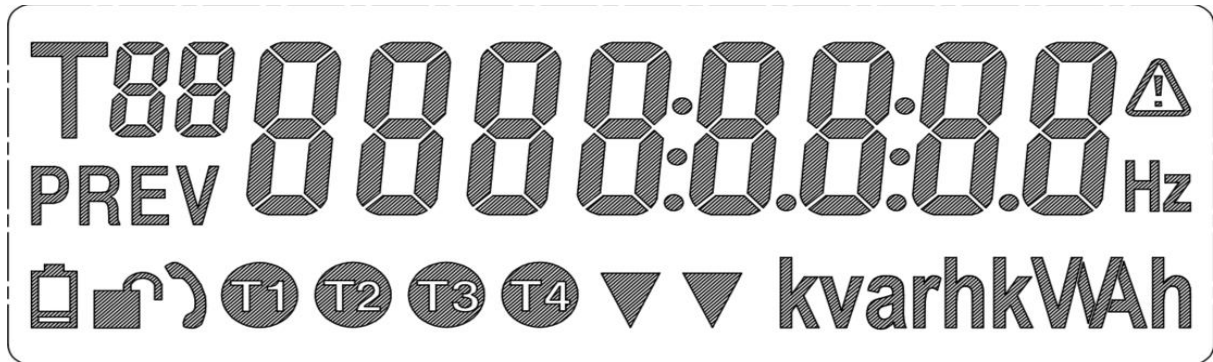
Content	Parameters
Standard	IEC 62053-21:2020 EN50470-3:2022 En IEC62052-11:2021/A11:2022 IEC62052-31 2024
Voltage Rating:	3*400V, 3 * 230V/400V
Ampere rating:	0.05-5(6) A
Pulse constant:	10000imp/kWh
Frequency:	50 Hz/60 Hz
Accuracy Rating:	C
Liquid Crystal Display:	6 + 2,7 + 1,8 decimal points move automatically
Operating Temperature:	-40 °C -70 °C
Storage Temperature:	-40 °C -70 °C
Power consumption:	Power on: less than 1ua; power off: less than 2UA
Average Humidity:	≤75% (non-condensing)
Maximum Humidity:	≤95%
Start-up current:	5MA
IP level:	IP51 indoor
Altitude	≤2000m
Contamination level	2
Level of protection	II (back)
Installation environment	Dry environment
Wiring	Three-phase three-wire, three-phase four-wire

UC level	UC1
Cable	26~12AWG/2.5mm ²
Power consumption	<2W <10VA

Series details of electric meters

Type	DEM4K103	DEM4K003	DEM4K10A	DEM4K00A
Pulse constant	10000imp/kWh	10000imp/kWh	10000imp/kWh	10000imp/kWh
Communications	RS485 Modbus/DLT645	RS485 Modbus/DLT645	IR	IR
Baud rate	9600/19200/38400/115200	9600/19200/38400/115200	/	/
Pulse output	10000imp/kWh	10000imp/kWh	10000imp/kWh	10000imp/kWh
Pulse width	80ms	80ms	80ms	80ms
Backlight	Blue	Blue	Blue	Blue
Lithium batteries	YES	NO	YES	NO
Multiple rates	YES	NO	YES	NO
Measures	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	1-total = forward 2-total = reverse 3-total = forward + reverse (default) 4-total = forward-reverse
Buttons	2	2	2	2
Button functions	Paging, setting	Paging, setting	Paging, setting	Paging, setting
Metering mode settings	RS485 or buttons	RS485 or buttons	Infrared or buttons	Infrared or buttons

Display



DEM4I103/DEM4I003/DEM4I10A/DEM4I00A

LCD scrolls the page

Page	Content	Unit	Format	Notes
1	Total active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
2	Forward active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
3	Reverse active energy	Kwh	5 + 2(6 + 1)(7)00000.00	Signed'-'
4	T1 active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
5	T 1 forward active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
6	T1 reverse active energy	Kwh	5 + 2(6 + 1)(7)00000.00	Signed'-'
7	T2 active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
8	T 2 forward active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
9	T 2 reverse active energy	Kwh	5 + 2(6 + 1)(7)00000.00	Signed'-'
10	T3 active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
11	T 3 forward active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
12	T3 reverse active energy	Kwh	5 + 2(6 + 1)(7)00000.00	Signed'-'
13	T4 active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
14	T 4 forward active energy	Kwh	6 + 2(7 + 1)(8)000000.00	
15	T 4 reverse active energy	Kwh	5 + 2(6 + 1)(7)00000.00	Signed'-'
16	Total reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
17	Forward reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
18	Reverse reactive energy	Kvarh	5 + 2(6 + 1)(7)00000.00	Signed'-'
19	Reactive energy in the first quadrant	Kvarh	6 + 2(7 + 1)(8)000000.00	
20	Reactive energy in the second quadrant	Kvarh	6 + 2(7 + 1)(8)000000.00	

21	Reactive energy in the third quadrant	Kvarh	6 + 2(7 + 1)(8)000000.00	
22	Reactive energy in the fourth quadrant	Kvarh	6 + 2(7 + 1)(8)000000.00	
23	T 1 reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
24	T 1 forward reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
25	T 1 reverse reactive energy	Kvarh	5 + 2(6 + 1)(7)00000.00	Signed'-'
26	T 2 reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
27	T 2 forward reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
28	T 2 reverse reactive energy	Kvarh	5 + 2(6 + 1)(7)00000.00	Signed'-'
29	T3 reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
30	T 3 forward reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
31	T 3 reverse reactive energy	Kvarh	5 + 2(6 + 1)(7)00000.00	Signed'-'
32	T 4 reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
33	T 4 forward reactive energy	Kvarh	6 + 2(7 + 1)(8)000000.00	
34	T 4 reverse reactive energy	Kvarh	5 + 2(6 + 1)(7)00000.00	Signed'-'
35	Power can be reset	Kwh	6 + 2(7 + 1)(8)000000.00	
36	Forward active power resets the energy	Kwh	6 + 2(7 + 1)(8)000000.00	
37	Reverse active power resets the energy	Kwh	5 + 2(6 + 1)(7)00000.00	Signed'-'
38	Reactive energy can be reset	Kvarh	6 + 2(7 + 1)(8)000000.00	
39	Forward reactive energy can be reset	Kvarh	6 + 2(7 + 1)(8)000000.00	
40	Reverse reactive energy resets the energy	Kvarh	5 + 2(6 + 1)(7)00000.00	Signed'-'
41	Maximum active power demand	Kw	2 + 3 00.000	
42	Maximum forward active power demand	Kw	2 + 3 00.000	
43	Maximum reverse active power demand	Kwh	2 + 3 00.000	With the symbol'-' ,
44	Maximum reactive power	Kvar	2 + 3 00.000	

	demand			
45	Maximum forward reactive power demand	Kvar	2 + 3 00.000	
46	Maximum reverse reactive power demand	Kvar	2 + 3 00.000	With the symbol '-' ,
47	A-N phase voltage	V	3 + 3 000.000	
48	B-N phase voltage	V	3 + 3 000.000	
49	C-N phase voltage	V	3 + 3 000.000	
50	A-B phase voltage	V	3 + 3 000.000	
51	B-C phase voltage	V	3 + 3 000.000	
52	C-A phase voltage	V	3 + 3 000.000	
53	Phase a current	A	3 + 3 000.000	Reverse Sign '-' ,
54	Phase B current	A	3 + 3 000.000	Reverse Sign '-' ,
55	Phase C current	A	3 + 3 000.000	Reverse Sign '-' ,
56	Total active power	Kw	2 + 3 00.000	Reverse Sign '-' ,
57	Phase a active power	Kw	2 + 3 00.000	Reverse Sign '-' ,
58	Phase B active power	Kw	2 + 3 00.000	Reverse Sign '-' ,
59	Phase C active power	Kw	2 + 3 00.000	Reverse Sign '-' ,
60	Total reactive power	Kvar	2 + 3 00.000	Reverse Sign '-' ,
61	Phase a reactive power	Kvar	2 + 3 00.000	Reverse Sign '-' ,
62	Phase B reactive power	Kvar	2 + 3 00.000	Reverse Sign '-' ,
63	Phase C reactive power	Kvar	2 + 3 00.000	Reverse Sign '-' ,
64	Total apparent power	Kva	2 + 3 00.000	
65	A-phase in power	Kva	2 + 3 00.000	
66	Phase B at power	Kva	2 + 3 00.000	
67	C phase at 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	C phase frequency	Hz	2 + 1 00.0	
72	Total power factor PF	/	1 + 3 0.000	Signed capacitive 'c' and perceptual 'L' , signed '-'

				(based on active work)
73	Phase a power factor PF1	/	1 + 3 0.000	Signed capacitive 'c' and perceptual 'L' , signed'-' (based on active work)
74	Phase B Power Factor PF2	/	1 + 3 0.000	Signed capacitive 'c' and perceptual 'L' , signed'-' (based on active work)
75	Phase C power factor PF3	/	1 + 3 0.000	Signed capacitive 'c' and perceptual 'L' , signed'-' (based on active work)

Press the button for more than 3 seconds on any scrolling display page to enter the information display page

LCD information display page

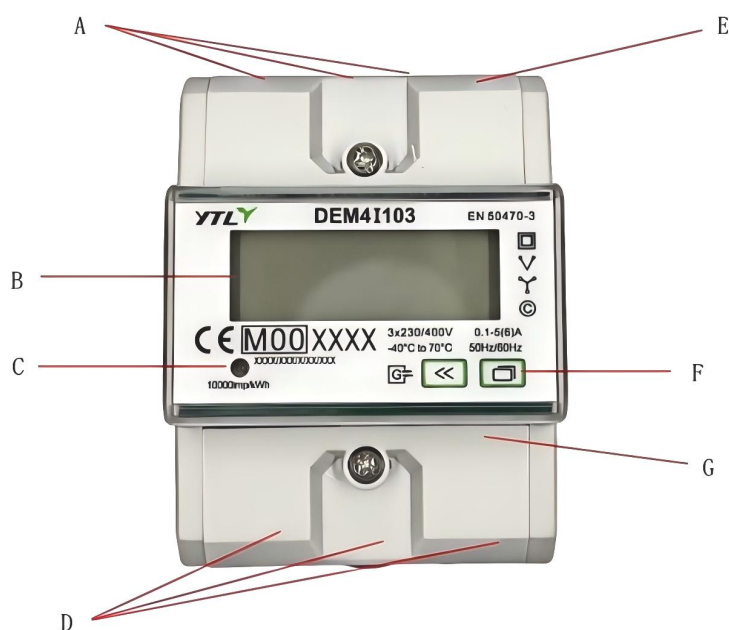
Page	Content	Unit	Format	Notes
1	Serial number/645 address/Mbus second address		12 bits, 000000000000	
2	Modbus ID/Mbus first address		1-247	Only available in RS485 modbus version
3	Baud rate		1200/2400/4800/9600/19200/38400/115200	Only available in RS485 modbus version
4	Check bits		Odd/Even/None	Only available in RS485 modbus version
5	Stop bit		1/2 bit	Only available in

				RS485 modbus vesion
6	Scroll time		5-99 seconds, 0 disables wheel display	
7	Composite Code		1 = Total = forward 2 = Total = reverse 3 = Total = forward + reverse 4 = Total = forward-reverse	
8	Types and cycles of demand		Type 0 interval 1 slip, period 1- 30 minutes	
9	So constant		10000	
10	Date		DDMMYY	Only available for DEM4K103 and DEM4K10A
11	Time		HHMMSS	Only available for DEM4K103 and DEM4K10A
12	Ct.		1-1000	
13	Vt.		1-1000	
14	Connection mode		0 three-phase four-wire. 1 three-phase three-wire	
15	Version number		U1001	
16	Checksum		XXXX	
LCD settings page				
Page	Content	Unit	Format	Notes
1	Modbus ID/Mbus first address		1-247	Only available in RS485 modbus version
2	Baud rate		1200/2400/4800/9600/19200/3 8400/115200	Only available in RS485 modbus version
3	Check bits		Odd/Even/None	Only available in RS485 modbus

				version
4	Stop bit		1/2 bit	Only available in RS485 modbus version
5	Show time		5-99 seconds, 0 disables wheel display	
6	Composite Code		1 = Total = forward 2 = Total = reverse 3 = Total = forward + reverse 4 = Total = forward-reverse	
7	Types and cycles of demand		Type 0 interval 1 slip, period 1-30 minutes	
8	So constant		10000	
9	Date		DDMMYY	Only available for DEM4K103 and DEM4K10A
10	Time		HHMMSS	Only available for DEM4K103 and DEM4K10A
11	Ct.		1-1000	
12	Vt.		1-1000	
13	Connection mode		0 three-phase four-wire. 1 three-phase three-wire	
14	Reset active power reset power		After long press display total (total, forward and reverse and phase (total, forward and reverse) can be reset part, you can select the corresponding data for reset	
15	Reset reactive power reset power		After long press display total (total, forward and reverse and phase (total, forward and reverse resetable parts, you	

			can select the corresponding data to reset	
16	Reset maximum active power demand		After long press display total (total, forward and reverse and phase (total, forward and reverse) can be reset part, you can select the corresponding data for reset	
17	Resetting maximum reactive power demand		After long press display total (total, forward and reverse and phase (total, forward and reverse) can be reset part, you can select the corresponding data for reset	
18	Password		4-bit default 0	
19	Quit		Exit settings	

Description



DEM4K103/DEM4K003/DEM4K10A/DEM4K00A

A voltage sampling

B LCD screen

C pulse indicator lamp

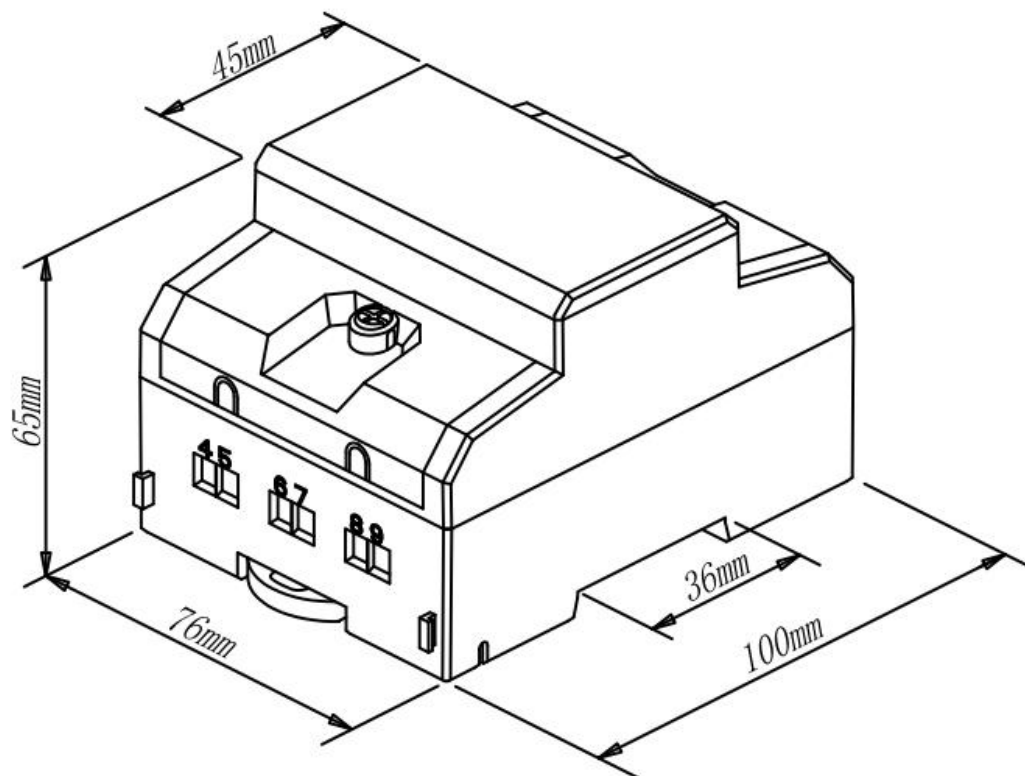
D current sampling

E zero line

F button

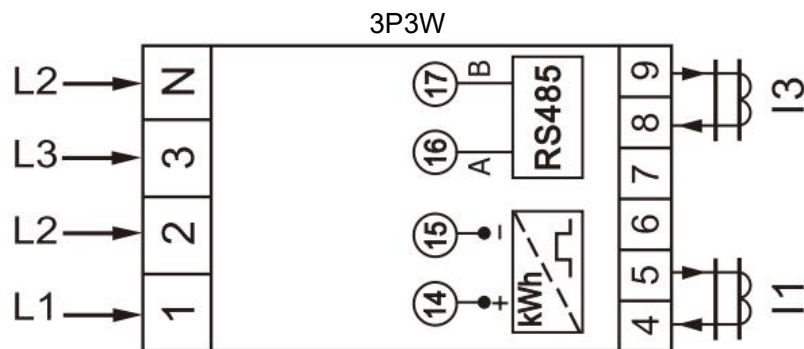
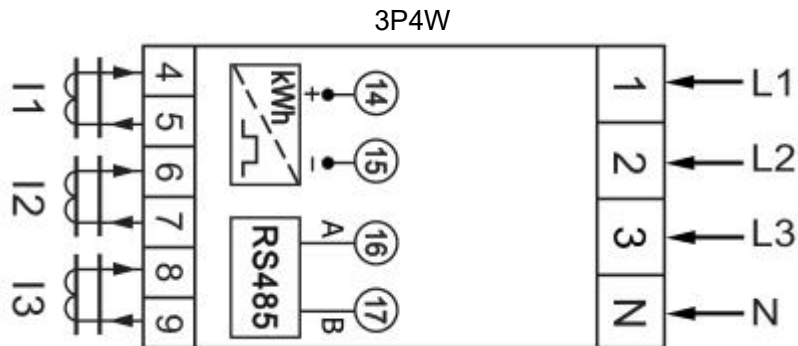
Interface GS485(Note: DEM4I10A/DEM4I00A does not have this interface)

Dimensions of electric meters

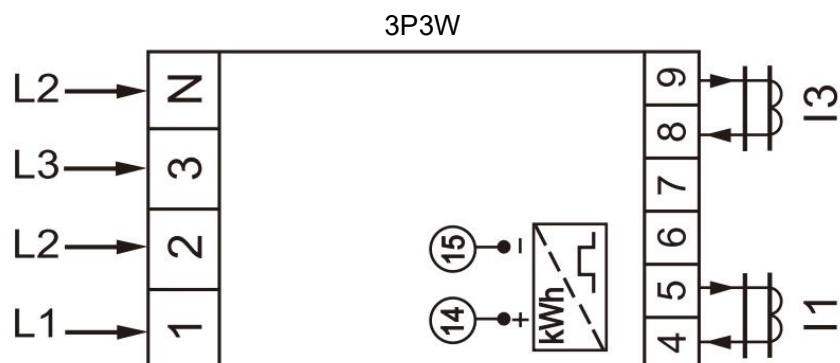
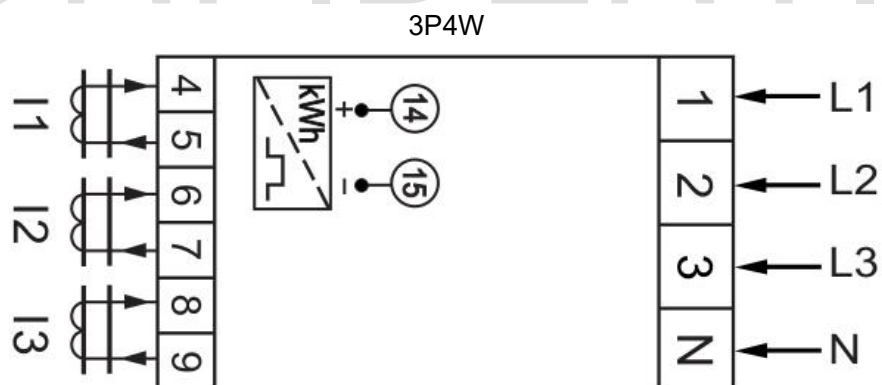


Wiring

DEM4K103/003



DEM4K10A/00A



No. 1, No. 2 and No. 3 are voltage sampling interfaces

No. 4 and No. 5, No. 6 and No. 7, No. 8 and No. 9 are a set of current sampling interfaces respectively
14,15 are SO outputs
Numbers 16 and 17 are a set of RS485 ports

Safety instructions

- Do not turn on the meter as the case is sealed. If it is open, there is no warranty.
- The meter should be installed in an indoor or outdoor meter box.
- In accordance with the 2014/32/EU Directive, the instrument shall be installed in accordance with the mechanical environment "M 1", low impact and low vibration.
- According to the 2014/32/EU Directive, the instrument shall be installed in accordance with the electromagnetic environment "E 2".
 - For the current terminals, the minimum size of the connecting cables and the recommended cable terminations and tightening are:

DEM4K003 DEM4K103 terminal 1、2、3、N: 0.5-2.5mm² , max0.5Nm; terminal 14、15、16、17: 0.5-2.5mm² , max0.4Nm

DEM4K00A DEM4K10A terminal 1、2、3、N: 0.5-2.5mm² , max0.5Nm; terminal 14、15: 0.5-2.5mm² , max0.4Nm

Personal safety information

This manual does not contain all safety measures for the operation of this equipment (module, equipment) because special operating conditions, local regulatory requirements or local regulations may require further measures. However, it contains information that must be followed to protect the individual from damaging the equipment. Depending on the severity of the warning, it is highlighted with an exclamation point or a lightning warning triangle.

Warnings

Means failure to comply with instructions may result in death, serious injury or major damage.

Precautions

This means that the risk of electrocution and failure to take the necessary safety precautions will result in death, serious injury or considerable material damage.

Qualified personnel

The installation and operation of this equipment as described in this manual shall be carried out only by qualified personnel.

Only persons authorized to install, connect and use the equipment and who have appropriate knowledge of electrical equipment and grounding and circuits may be considered qualified persons in the electronic manual in accordance with safety and regulatory standards.

Purpose

Devices (devices, modules) can only be used in the application cases specified in the catalog and user manual, and are only relevant for YTL approval of devices and components.

Disclaimer

We have reviewed the content of this publication and have made every effort to ensure that the description is as accurate as possible. However, deviations from the description can not be completely ruled out and therefore any liability for errors or omissions in the information provided can not be accepted, the data in this manual are reviewed periodically and subsequent versions will be revised as necessary. If you have any suggestions, please let us know.

Any technical changes are subject to change without notice.

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General warning

After removing the package, ensure the integrity of the equipment. If in doubt, do not use the equipment and contact the technician. Electrical installations must be carried out only by skilled electricians. Generally applicable safety measures must be observed.

If the equipment fails and/or breaks down, shut it down immediately. Be sure to contact a technician for repairs. Failure to comply with the above regulations may endanger the safety of the equipment.

Warranty

Within 18 months, if a product is found not to meet the technical specifications, the manufacturer will repair and return the product with the seal intact.

Technical support

If you have any questions about our product, please contact:

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