

PSI-X-DH1000

EN

User manual



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1. Safety

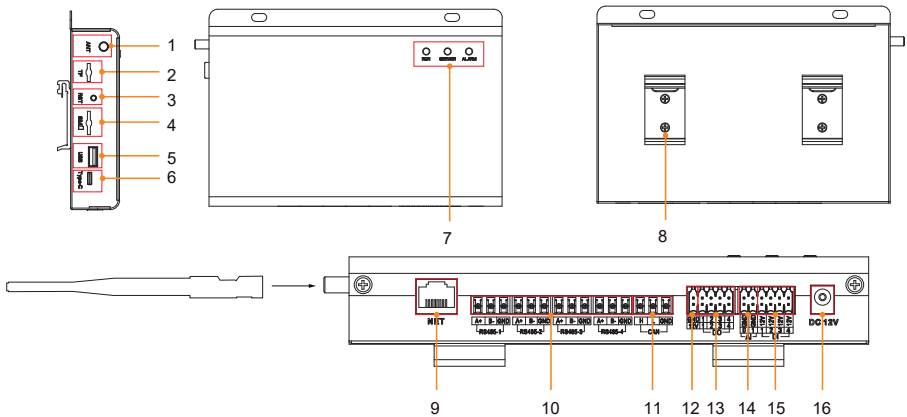
The PSI-X-DH1000 has been designed and tested strictly in accordance with relevant safety regulations. The safety instructions must be followed when installing and maintaining the electrical and electronic equipment. Improper operation will cause personal injury and property damage to the operator and the third party.

- Children should be supervised to ensure that they do not play with PSI-X-DH1000;
- Please do not open the top cover. Touching or replacing the components without authorization of Peimar may cause personal injury or damage to PSI-X-DH1000. Peimar does not assume any responsibility and warranty;
- Static electricity may damage the electronic components; therefore, appropriate anti-static measures should be taken.

2. Overview of PSI-X-DH1000

2.1. Introduction

PSI-X-DH1000, a special equipment of the monitoring platform of photovoltaic power generation system, has realized many functions, with details as follows: interface aggregation, data acquisition, data storage, output control, and centralized monitoring and centralized maintenance of inverters, electricity meters, environmental monitors and other equipment in photovoltaic power generation systems.



(1)	Antenna Jack
(2)	TF card socket (TF)
(3)	RST button (RST)
(4)	SIM card socket (SIM)
(5)	USB socket (USB)
(6)	TYPE-C socket
(7)	LED indicator (RUN,SERVER,ALARM)
(8)	Rail clip
(9)	NET socket (NET)
(10)	RS485 socket (RS485)
(11)	CAN socket (CAN)
(12)	12V power output (12V/GND)
(13)	DO socket (DO)
(14)	AI socket (AI)
(15)	DI socket (DI)
(16)	12V power input (DC12V)

Sign	Status	Explanation
RUN (GREEN)	Flash	The program runs normally.
	Always on or always off	The program runs abnormally.
SERVE (GREEN)	ON	The network connection is normal.
	OFF	The network connection isn't normal.
ALLARME (ROSSO)	ON	Device alarms
	OFF	No alarm

3. Installation

3.1. Packing List

After receiving the package of PSI-X-DH1000, please check whether the accessories are complete and there is no obvious damage to the appearance. If there is any damage or items missing, please contact the dealer.

Power adapter	1
Intallation instruction	1
WiFi antenna	1
Screws	18
Plug-in terminal	5
Plug-in terminal	1
Plug-in terminal	1
Rail buckle	2

Line Specification	
RS485	Cross -sect ional area 0.2mm ² ~2.5mm ² (24AWG ~ 14AWG) dual -core or mult i -core cables
DO/DI/AI	Cross -sect ional area 0.2mm ² ~1.5mm ² or (24AWG ~ 16AWG) dual -core or mult i -core cables
NET Cable	Cat 5e or higher standard network cable

3.2. Device Installation

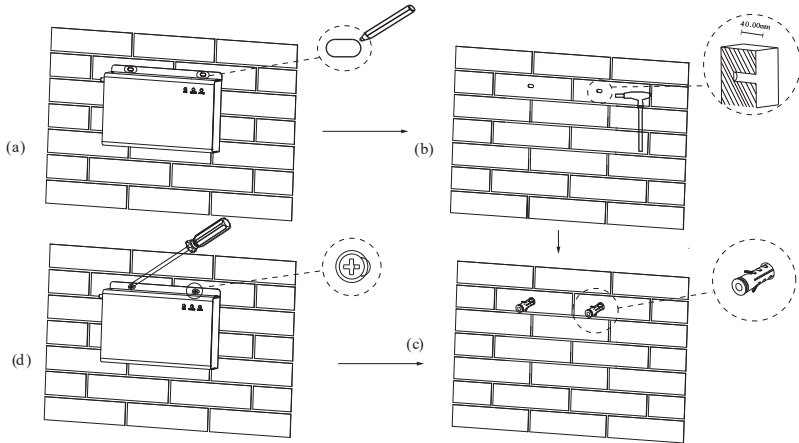
3.2.1. Indoor Wall Mounting

1. Choose a flat and solid indoor wall to drill for installation;
2. Hang the PSI-X-DH1000 on the wall with the cable connection area facing down.



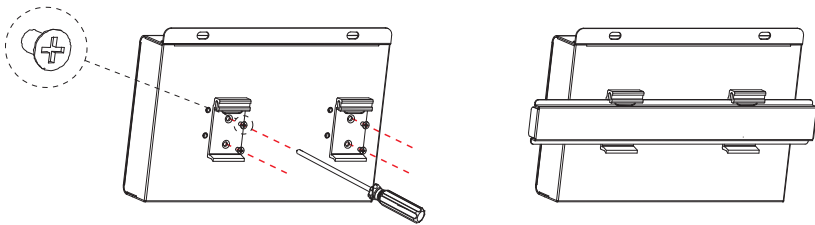
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The outdoor installation must be in a waterproof housing.



3.2.2. Guide Rail Mounting

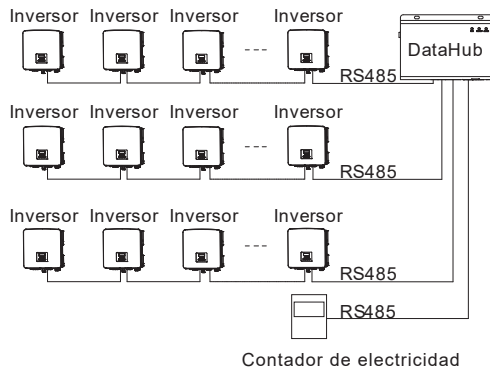
1. Use the four M3*L6 screws in the accessory bag to fix the buckle on the PSI-X-DH1000.
2. Please prepare 35mm standard rail (effective length $\geq 230\text{mm}$) and install it firmly.



4. Electrical Connection

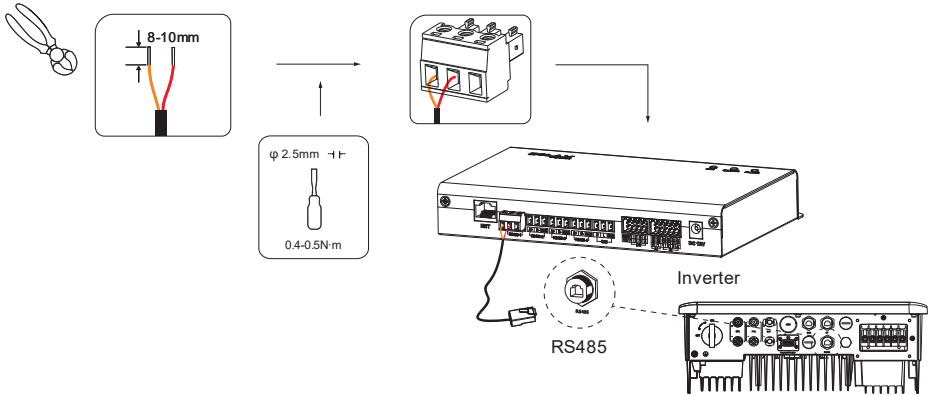
4.1. Inverter Connection

1. The inverter is connected to the PSI-X-DH1000 through the RS485. For the connection method of the inverter, please refer to the inverter installation manual;
2. It is recommended that the number of devices connected to each channel of RS485 is less than 20;
3. The baud rate, communication protocol and verification method of the inverters connected to the same RS485 port of PSI-X-DH1000 must be consistent, and the communication addresses of the inverters must be consecutive and not repeated.



4.2. Installation of RS485

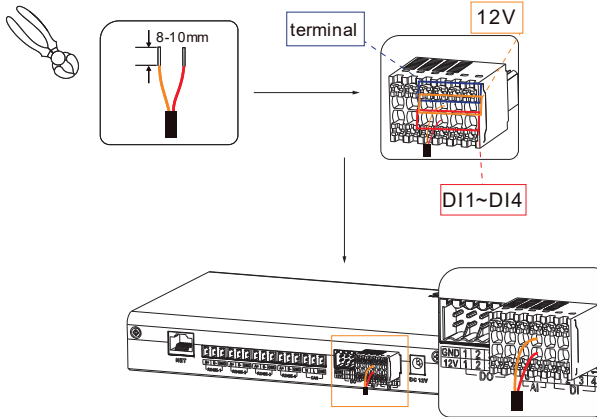
Make sure that RS485+ is connected to PSI-X-DH1000's RS485+, RS485- is connected to PSI-X-DH1000's RS485-, RS485 GND is connected to the GND of PSI-X-DH1000.



Pocket	Sign	Illustrate
RS485-1	+	RS485A,RS485Differential s ignal+
RS485-2	-	RS485B,RS485Differential s ignal-
RS485-3	GND	Ground wire
RS485-4		

4.3. Installation of DI Signal Cable

PSI-X-DH1000 can access DI signals such as remote control and alarms through the DI port.

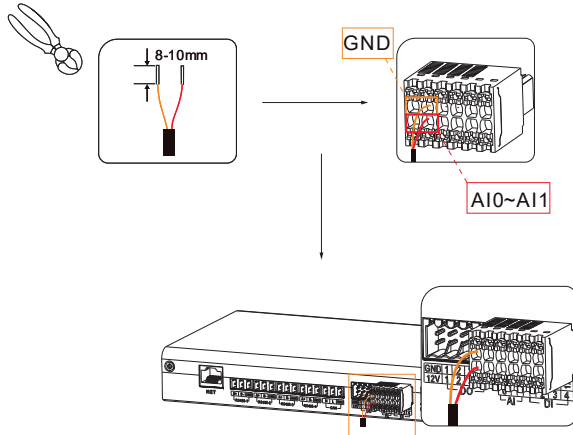


Socket	Mark	Illustrate	
DI	DI1	1	Support passive dry contact signal access
		12V	
	DI2	2	
		12V	
	DI3	3	
		12V	
	DI4	4	
		12V	

4.4. Installation of AI Signal Cable

Installation advice:

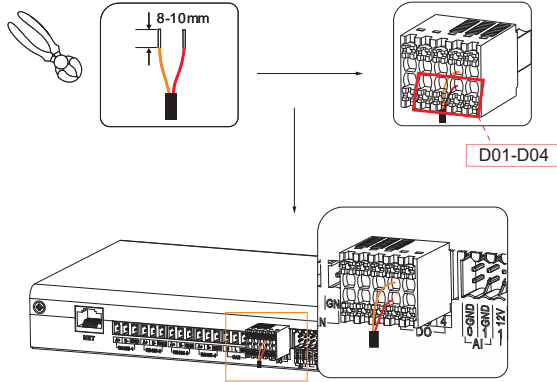
- It is recommended that the transmission distance does not exceed 10 m;
- AI port 0 and AI port 1 are connected to AI signal +, and GND is connected to AI signal-.



Socket		Mark	Illustrate
DI	AI0	0	Supports 0-12V voltage input
		GND	
	AI1	1	
		GND	

4.5. Installation of DO Signal Cable

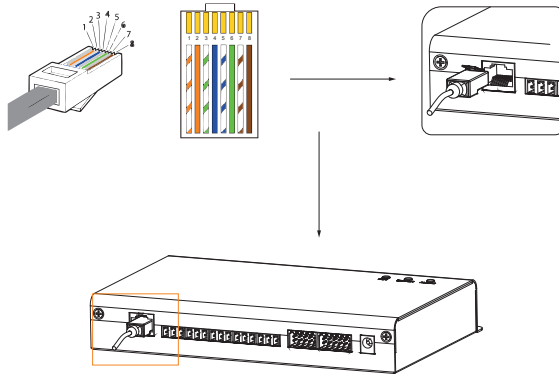
The DO port supports 30V signal voltage in maximum. The contact of four-group output is on by default.



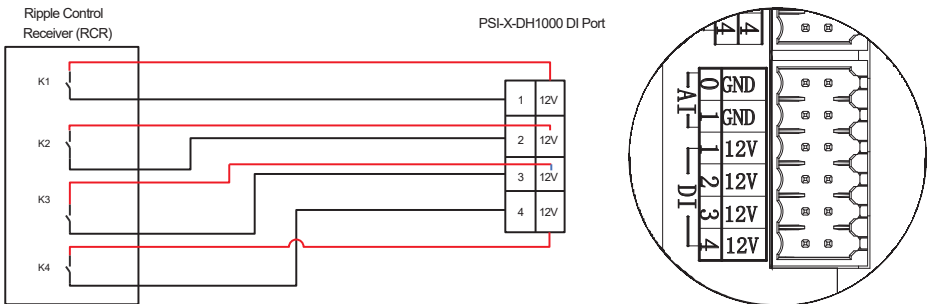
Socket	Mark	Illustrate	
DO	DO1	1	Max. load 30V/2A
		1	
	DO2	2	
		2	
	DO3	3	
		3	
	DO4	4	
		4	

4.6. Installation of Network Cable

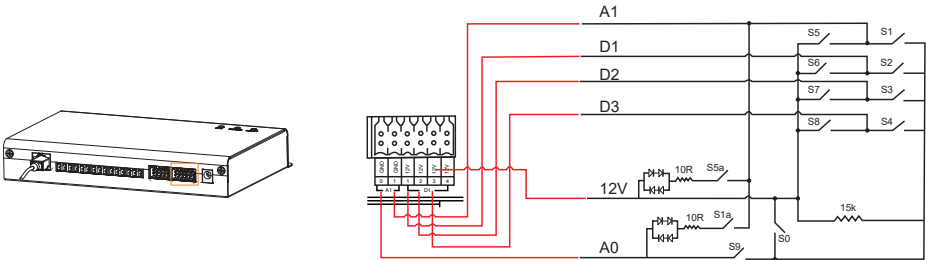
1. Use Cat 5e or higher specifications and Shielded crystal head connectors to prepare the network cable.
2. The communication distance does not exceed 100 m.
3. When crimping the network cable, ensure that the shielding layer of the network cable is properly connected to the metal shell of the RJ45 connector.



4.7. Connecting to Ripple Control Receiver



4.8. Connecting to DRED



5. Configuration Function

5.1. Login

Local login: connect the computer to the PSI-X-DH1000 hotspot (WiFi _xxxxxxx), and use the computer to access 5.8.8.8 to enter the login interface.

LAN login: please refer to 5.6.1 Internet setting.

Administrator account: admin, initial Password: (the same as Registration Number).

User account: user, initial Password: 123456.

Visitor account: visitor, initial Password: 123456.

5.2. Site Management

5.2.1. Add Device

The devices supported by PSI-X-DH1000 are as follows: Inverters, Electricity Meters, and Environmental Monitors.

Select the device type under the serial port, set the starting address and the number of devices under the serial port, and save these settings.



PLEASE NOTE

Please refer to Appendix 1 to check whether the baud rate of the model is 19200 or not. If the baud rate is not 19200, please refer to 5.6.3 Serial port setting for more details of setting baud rate.



PLEASE NOTE

When connecting to PSI-X3P-TP, please make sure the meter is disabled.

The device details will pop up. Please confirm whether the model is correct or not and then Click “Save”.

5.2.2. Device Detail

Click the corresponding device to query the device data, or select the device to export the device data.

5.3. Sits Setting

“Site Setting” is equipped with three modules, which are “Export Limit Control”, “Power Control” and “Meter Reversion”. The “Export Limit Control” and the “Power Control” are mutually exclusive so that only one can be enabled.

5.3.1. Export Limit Control

The purpose of the “Export Limit Control” is to limit the power supplied to the grid. The inverter generates electricity to the grid when the power source is positive, and takes electricity away from the grid when the power source is negative. The control mode includes “Total” and “Per Phase”.

“Total”: The Site Limit is the total export power (the combined production minus the combined consumption) on all the phases combined. Reverse current on one phase will count as negative power and can compensate for another phase.

“Per Phase”: For three phase inverter connections, the inverter sets the limit on each phase to 1/3 of the total site limit. Use this mode if there is a limit on each individual phase.



PLEASE NOTE

Before using the “Export Limit Control” function, make sure that a meter has been connected to the PSI-X-DH1000. The output of device will be abnormal when connecting to three phase three wire under “Per Phase” mode.

5.3.2. Power Control

Power control includes “Ripple Control Receiver” and “DRED Control” disable.

The “Ripple Control Receiver” is to control the input active power and reactive power, output active power and reactive power of the inverter and inverter off according to the high or low input of the DI port. The green one indicates the high input of power; the white one indicates the low input of power. There are a total of 16 situations for users to set the active and reactive power according to each situation.

DRED control is applied to set the active power according to high or low input of the A0, A1, D1, D2 and D3 of DI ports.

Mode	Operate	Explanation	Note
DRM0	Close S9,S0	Inverter shutdown	When two or more DRM modes work at the same time, take the optimal result that can satisfy both of them
DRM1	Close S9,S1, disconnect S0	Close S1, charging power is 0%	
DRM5	Close S9,S5	Inverter does not output active power	
DRM6	Close S9, S6	The active power output by the inverter does not exceed 50% of the rated power	
DRM7	Close S9, S7	The active power output by the inverter does not exceed 75% of the rated power	
DRM8	Close S9, S8	The active power of the inverter output power starts to recover. Description: The inverter outputs according to the active power percentage set by PSI-X-DH1000.	

5.3.3. Meter Reversion

When the current direction of the user's meter is reversed, there is no need to rewire, just turn on the enable switch and submit this setting.

5.4. Inverter Setting

There are three functions under "Inverter Setting": "Inverter Active/Reactive Power Setting", "Remote System Switch" and "Parameter Setting".

5.4.1. Inverter Active/Reactive Power Setting

Remotely set the active or reactive power of the inverter. The reactive power mode is divided into "OverExcited", "UnderExcited", "Fixed Reactive Power" and "Disable" terms. (multiple selections are available)

5.4.2. Remote System Switch

Controllo remoto dell'accensione e dello spegnimento dell'inverter. (Può essere operato in batch)

5.4.3. Parameter Setting

Professionals can read and write the inverter through the inverter's "Modbus Opcode", under which there are "READ_HOLDING_REGISTERS", "READ_INPUT_REGISTERS", "WRITE_SINGLE_REGISTER" and "WRITE_MULTIPLE_REGISTERS". (Can be operated in batches)

5.5. Inverter Upgrade

Using PSI-X-DH1000 to upgrade the inverter. Click "Upgrade" to select the upgrade file types which include "ARM", "MDSP", "SDSP", "ARC", "ARM+DSP", "BMS_M" and "BMS_S". Select the corresponding file to upgrade the inverter.



PLEASE NOTE

It takes nearly 15-30 minutes to upgrade the inverter. During upgrading, no data will be uploaded.

5.6. PSI-X-DH1000 Setting

5.6.1. Internet Setting

Wired connection: connect the Datahub and router via network cable.

Wireless connection: After local login, please enter “System Setting”-“Internet Setting”-“WiFi Setting” to select the WiFi and enter the password. Connect the computer and PSI-X-DH1000 to the same WiFi, and then visit <http://datahub.local/> to log in. If there is no feedback of wireless connection within 30 seconds, please disconnect and reconnect the Datahub hotspot (WiFi_XXXXXX). If the current connection is via WiFi and WiFi address already appears in the system information, it means the WiFi is successfully connected and you can login via LAN. Otherwise, try wireless connection again.

Fixed IP: IP: If the user needs to fix the IP after completing wired or wireless connection via DHCP, select the correct

network card type, turn off the automatic acquisition of IP address, and set the “IP Address”, “Subnet Mask”, “Gateway” and “DNS”.



PLEASE NOTE

Ordinary users do not need to perform any operations if they do not need a fixed IP.

5.6.2. Time Setting

The time setting is to set the PSI-X-DH1000 system time, including “Time Synchronization”, “PeimarXPortal Synchronization” and “Other Server Synchronization”.

“Time Synchronization”: The system corrects the time automatically.

“PeimarXPortal Synchronization”: The platform of Peimar sends a synchronization command to change the time of system.

“Other Server Synchronization”: The IEC104 server sends a synchronization command to change the time of system.



PLEASE NOTE

When using PeimarXPortal to set the time, please switch to “PeimarXPortal Synchronization” mode.

5.6.3. Serial Port Settings

Serial port settings is to set the baud rate of the four serial ports of PSI-X-DH1000, the default value of the baud rate is 19200. The user can change the baud rate under the serial port according to the model.



PLEASE NOTE

The baud rate of the model under the serial port is consistent, and it is consistent with the serial port baud rate set by datahub. The default value of the stop bit is 1.

5.6.4. Other Setting

The “Platform Setting” is the setting to upload the data to the platform, the data is sent to Peimar by default, and the other is sent to the IEC104 server.

The “Database Storage Setting” is a path for inverters to store data. There are two storage paths including the “Default” and the “TF Card”. The “Default” is to store data on the Datahub.

Electricity price setting: Calculate the income through the electricity price and display it in the overview interface.

“CO₂ Savings Factor”: Calculate the amount of CO₂ through the coefficient and display it in the overview interface.



PLEASE NOTE

It is recommended to use a TF card with a capacity of 16G; If the database storage path is a TF card, the TF card cannot be pulled out when the system is running. If you want to pull out the TF card, you need to change the storage path to the default, and then pull out the TF card. (It is recommended to unplug after power off)

5.6.5. Datahub Information

“Datahub Information” displays the basic information of datahub, including “Registration Number”, “Firmware Version”, “Internal Codes”, “System Time”, “Memory Usage”, “Free Disk Space”, “Free TF Space”, “Wi-Fi Connection”, “LAN IP Address”, and “WiFi IP Address”.

Clear historical data: Clear the historical data of the device.

5.6.6. PSI-X-DH1000 Upgrade

Click the “Click to Upload and Upgrade” button to upload and upgrade the PSI-X-DH1000, then select the upgrade file and wait for the upgrading. (Only one file can be uploaded at a time, and the interface needs to be refreshed for continuous operation.)

5.7. Password Modification

The system provides two methods for modification: “Modify Password” and “User Password Management”.

5.8. System Resetting

System resetting restores the system to factory settings, the historical data and the configuration information of datahub will be cleared.

Operation: press and hold the “Recover” button for 10 seconds until all three LEDs are off, and then release it. After completing the above operations, the service restarts and the system reset is complete.

6. Specifiche Tecniche

Product	PSI-X-DH10001000
Hardware	
Power adapter	100-240V 50/60Hz AC Input, 12V 2A DC Input
Rated power	24W
Data transfer interval	5 min
Storage capacity	8G/16G TFcard
The number of managed devices	60
Communication	
Inverter communication	3x RS485
Wireless module	WiFi 2.4GHz
Access network	WiFi
Communication of electricity meters and environmental detectors	1x RS485
Communication distance	Wireless >10 m, LAN >100 m
DRM interface	Australia only
USB interface	1 USB Interface (For local upgrade and parameter setting)
Dry Node Control Receiver	2AI, 4DI, 4DO (Reserved for external expansion)
General parameters	
Dimensions (length*width*height)	20512433 mm
Weight	<= 500 g
Operating Temperature Range	-20°C ~ +60°C
Degree of Protection	IP20
Installation method	Wall-mounted, rail-mounted
Indicator light	LED
Standard	
Certification	RED/FCC/CE/RoHS

7. Certified Quality Assurance

7.1. Certification mark



This device MUST NOT be disposed as a municipal waste.

Please refer to the "Disposal" chapter of this manual for proper management of the disposal of the inverter.



CE MARK

Devices with the CE mark meet the essential requirements of the Low Voltage Directive and the Electromagnetic Compatibility Directive.

7.2. Warranty

Peimar grants a standard 24-month warranty, if it is otherwise stipulated in the contract, the contract shall prevail.

7.3. Warranty Conditions

In case the product is operated according to the above instruction, Peimar will provide after-sales service during the product warranty period if any failure (error) is caused by product quality.

7.4. Exclusion of Liability

Warranty claims are excluded for direct or indirect damage due to:

1. Warranty period for the product or accessories have expired, but not extended;
2. Failure to operate the product in accordance with the installation and maintenance requirements described in the relevant manual;
3. Failure or damage caused by not operating, storing and using in the specified working environment;
4. Failures or damages caused by unforeseen unexpected factors, human factors or force majeure; and
5. Other failures or damages not caused by PSI-X-DH1000's own quality problems.

8. Disposal



This device MUST NOT be disposed as a municipal waste.

The crossed-out wheeled bin symbol on the appliance's label indicates that the product, at the end of its useful life, must be collected separately from other waste to allow for proper treatment and recycling. Therefore, at the end of its useful life, the user must hand over the appliance free of charge to the appropriate municipal selective collection centres for electrical and electronic waste. Appropriate separate collection for subsequent recycling, treatment and disposal of the appliance in an environmentally compatible manner helps to avoid possible negative effects on the environment and on health and encourages the reuse and/or recycling of the materials that make up the appliance. Illegal disposal of the product by the user will result in the application of the penalties established by law.

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