Specifications of Product

DESCRIPTION: UPS

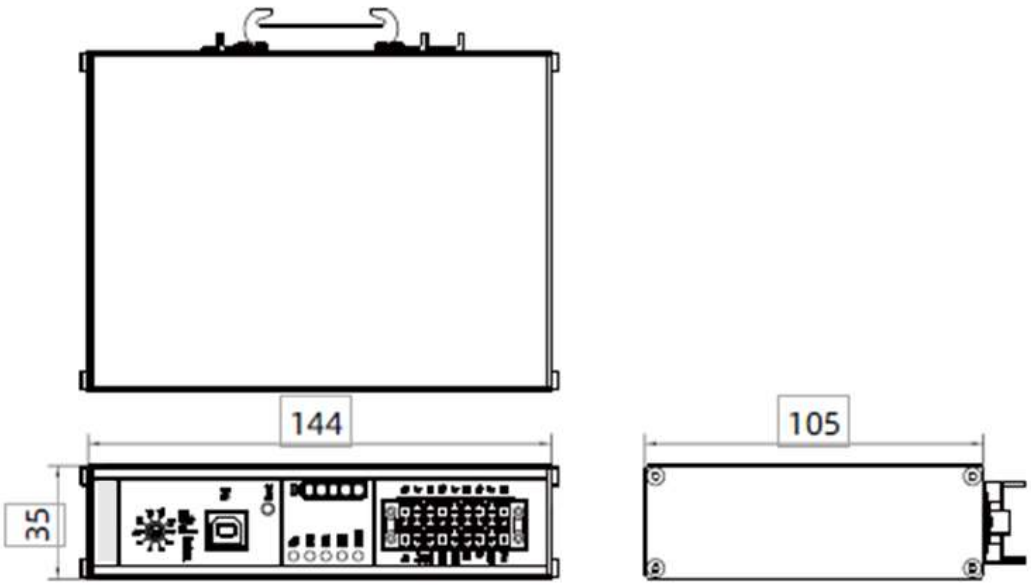
MODEL: DUS-24120

Specifications:

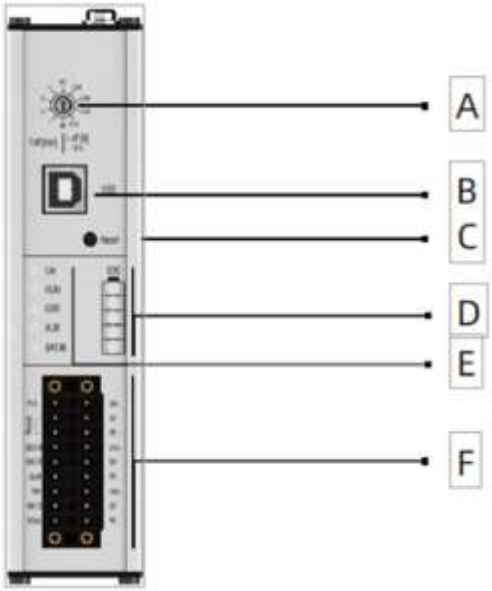
Model		DUS-24120	
DC_IN	Voltage	DC 24V~26.4V *Affect the charging effect if the input voltage is less than 24V	
	Electricity	8A	
	Protection	Anti-reverse connection, over-voltage protection，EFT±1500V，surge 2000V	
DC_OUT	Voltage	24V（The voltage range can be customized from 12 to 24V）	
	Electricity	7.5A	
	Protection	Overcurrent and overload protection	
Electrical Parameter	No-load power	<3W	
	Max power	120W	
	Max Electricity	3A	
	Full time	Work voltage	Full time（min）
		DC 24V ~26.4V	30
	Discharge time	Load power（W）	On-load hold time（min）
		30	60
		60	25
		120	10
		180	2
Supercapacitor	Capacity	1080 mAh	
	Service life	Charge and discharge 50,000 times	
IO	IO Voltage	DC 24V	
	Isolation mode	Optocoupler	
	Isolation voltage	3.75kV	
Signal Type	Signal specification	DC 24V/3mA	
	DC OK	DC power supply status, relay normally open output	
	Bat.Mode	Battery operated mode, NPN output	
	Bat.Ready	Battery full output, NPN type output	
	SW	Remote switch output，NPN output	
	Remote	Remote power off output, dry contact switch quantity	
	Bat.Start	Forced cell output,NPN type input	
	Communication interface	USB	
	Communication protocol	Modbus RTU	
	Operating Temperature	-20℃~60℃	

Environment	Storage Temperature	-40℃~80℃
	Operating Humidity	5~95%
	Mount	DIN-Rail
	Net weight	0.65kg

Technical Drawings unit:mm



External I/O View



Interface definition：

A：Working mode code disk

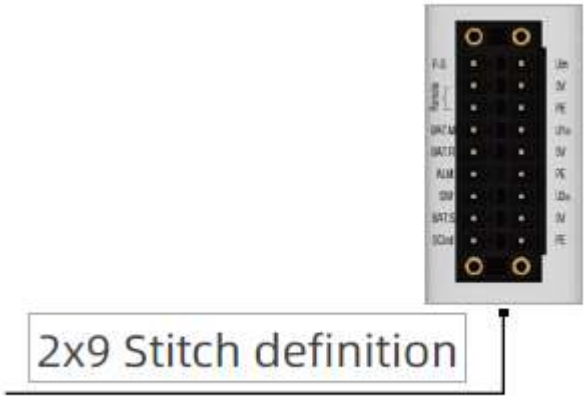
B：USB interface

C：Reset

D：Battery status indicator

E：UPS Operating status light

F：DI/DO interface



Pin	Signal	Name	Function
1	Uin	Powe Input	DC 24~28V
3	0V	Power Ground	
5	PE	Protected Area	
7	U1O	Power Output1	When There Is No External Power Supply Lithium Battery Output: DC24V±0.5V / 6.25A() External Power Supply:UIN-2V
9	0V	Power Ground	
11	PE	Protected Area	
13	U2O	Power Output2	When There Is No External Power Supply Lithium Battery Output: DC24V±0.5V / 6.25A(Share The Maximum Output Power With Power Supply Output1). External Power Supply:UIN-2V
15	0V	Power Ground	
17	PE	Protected Area	
2	P.S	Control Signal Input	Connect With The Power-On State IO Of The Industrial Compuer,Receive The State Change Of The Pulse Edge,Change From High Level To Low Level To Indicate That The Computer Is Shut Down,And Turn Off The UPS After 5 Second When It Becomes Low Level.
4	Remote(ENO_OUT1A)	Status Signal Output	Keep Disconnected When The External Power Supply Is Powered,And Close When There is No Power.

6	Remote(ENO_OUT1B)	Status Signal Output	Keep Disconnected When The External Power Supply Is Powered,And Close When There is No Power.
8	Bat.M(EOUT4)	Status Signal Output	Status Signal Output UPS Working Mode Output Signal, Low Level when External Uin ls Powered,High Level 24V When Uin Is Cut Off And Powered By Battery
10	Bat.R(EOUT3)	Status Signal Output	UPS Internal Battery Status Output Signal, High Level When The Charging Capacity Reaches 85%(Configurable),Otherwise Low Level
12	ALM(EOUT2)	Status Signal Output	UPS Alarm Signal, Normally Low Level,When The External Power Supply Fails And The Power ls Lower Than 30%(Configurable),Output High Level 24V
14	SW(EOUT1)	Status Signal Output	UPS Switch Signal, The Default Shutdown Pulse Signal ls Sent After Setting The Shutdown Trigger Power(Default 90%)Or Shutdown Trigger Delay Time (Default 5S)
16	BATS (EDIN2)	Status Signal Input	UPS External Start Signal Status, When There ls A High Level Signal, UPS Keeps Output Until The Battery Power Is Lower Than The Protection Value
18	SGND	Status Signal Input Ground	

Packing List

USB	1m USB Square extension cord

Safety Instruction：

1. Before installing, wiring, operating, and checking the product, it is necessary to carefully read this manual and related manuals introduced in the manual, and operate the product correctly with full attention to safety.
2. Please keep this user manual for future reference.
3. Please unplug the power cord from the socket before cleaning the device with a damp rag. Do not use liquid or decontamination sprays to clean the equipment.
4. For devices that use power cords, there must be an easily accessible power socket around the device.
5. Ensure that the device is placed on a reliable surf ace before installation. An unexpected fall may damage the device.
6. Before you connect the device to the power socket, make sure that the power socket voltage meets the requirements.
7. Please place the power cord in a position where people cannot easily trip, and do not cover any debris in the power line.
8. Please pay attention to all warnings and attention signs on the device.
9. If you do not use the device for a long time, please disconnect it from the power socket to avoid the device being damaged by excessive voltage fluctuations.
10. Do not allow any liquid to flow into the equipment , you must disconnect to avoid fire or

short circuit.

11. Please do not turn on the device by yourself. To ensure your safety, disconnect all external power supplies used by the system before turning on the device. Turn on the device by a certified professional engineer with sufficient electrical knowledge.

In case of the following situations, please be repaired by professional personnel:

- The power cord or plug is damaged
- There is liquid flowing into the equipment
- The device does not work properly, or you cannot make it work properly through the user manual
- Equipment falls or is damaged
- The equipment has obvious appearance damage

Please do not store the device in an environment beyond our recommended temperature range, that is, not lower than -20℃ or higher than 60℃, otherwise it may damage the device.

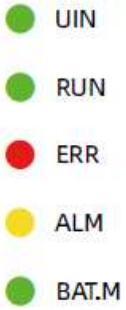
Disclaimer

All components are provid with specific hardware and software configurations are suitable for application software. Unauthorized modification and alteration of hardware or software configuration beyond the scope of the document is prohibited, otherwise FSP POWER SOLUTION GmbH shall not be liable for any resulting liability arising therefrom.
The following actions are not within the scope of responsibility of the Company:

- Failure to comply with the provisions of this document
- Improper use
- Operated by untrained personnel
- Unauthorized replacement of parts

Indicator Function Description

Function Indicators



lead	signal	name
1	UIN	Power output state
2	RUN	UPS operating status indicator
3	ERR	UPS error status indicator
4	ALM	Alarm status light
5	BAT.M	Battery power status indicator

UIN

Input higher than 18V shows green, otherwise close

RUN

Blinking green: The PMS is running properly

Red Steady on: PMS is not running normally (1, the power is normal and the output voltage is not in the normal range)

Off: The UPS is powered off

ERR

Steady red: The device is faulty, and UPS initialization fails (1. The energy storage module is not detected. 2.

Steady yellow: PMS is faulty during the operation of the device (1, the power is normal and the output voltage is not in the normal range)

Steady orange: The temperature inside the UPS is higher than 65℃

Off: The UPS is working properly

ALM

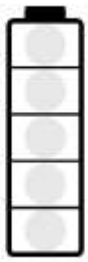
The Alarm pin has a bright yellow output, otherwise close

BAT.M

Steady green: indicates battery power supply

Off: indicates that the external Uin supplies power normally

Battery Indicator SOC



During charging, the indicator corresponding to the current charging capacity blinks, the indicator lower than the charging capacity is steady on, and the indicator higher than the charging capacity is off.

Note: Because the power is judged according to the battery voltage, there will be a phenomenon that the power indicates a faster decline when the load is large.

Normal Judgment Logic of the energy storage unit

After power-on, turn off the charging function of the energy storage unit. If the voltage of the energy storage unit is lower than 3V, turn on the charging function for at least 1 Ss.

If the voltage of the energy storage unit is higher than 12 ㄟ disable the charging function. If the

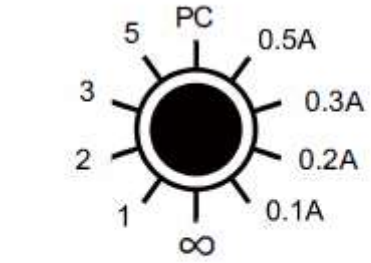
voltage of the energy storage unit remains above 9V, the energy storage unit returns to normal. Otherwise, a message indicating that the energy storage unit is faulty is displayed.
When the supercapacitor is used, the charging voltage exceeds l 6.3V for more than 55 to shut down the charging, and below 15.BV to restore the charging.

Control Logic Description

General description

gear description

Knob gear is divided into current gear and time gear:
Current stop refers to when the current value of the Ul O is less than the set value of the gear for a certain period of time, the UPS shuts down output and shuts down itself.
Time interval refers to the shutdown of Ul OUT and U20UT when the external power supply is detected without the specified time specified by the rear output knob. The shutdown time can be maintained for more than 5 minutes at 120W output, which allows the computer to have enough waiting time to complete the shutdown task.



Tmax[min]	Imin[A] U1o

common Logic

1. Ul 0, U20, UPSWork control relationship: The USPWork is powered on during startup, and the U20 output is determined according to the relevant status. The Ul O output is output after the U20 output is 55. The U20 is turned off for 55 and then the Ul O is turned off.
2. Device output current monitoring: Regardless of the mode after the external power failure, if the output current is not lower than the 40007 register (ma) set value, follow the normal output shutdown action and wait for the Ul O output current to be lower than the set value before shutting down the output. If the Ul O output current is higher than the 40007 register set value, keep the UPS output not closed.
3. Power protection (internal signal) : When the voltage of the UPS internal energy storage unit is lower than the set value (default: 1 OV), the UPS is forced to shut down.
4. External calls return to normal before the shutdown signal is sent.
5. When the UPS is shut down, the Ul O and U20 have no output voltage or current for more than 5 seconds. When the UPS is restarted, the external voltage is higher than 20V.
6. When the Ul O output current is lower than the current shutdown value, the UPS shuts down the U20, Ul 0, and UPS in the normal sequence.

bat mode signal (OUT)

When the Ul OUT and U20UT have an output voltage and there is no external power supp 以 the output is high. Otherwise, the output is low.

batr (bat ready) signal (out)

The internal energy storage is full (85% by default, it is recommended to configure the power) the signal output high level, otherwise output low level.

alm-alarm signal (out)

When there is no external input power supply and the power is less than 30%, the output level is high, otherwise it is low.

Mode action

The following description does not include the output signal actions of BatM, BatR, and ALM.
If mode/parameter switchover occurs after a power failure, the system determines and executes the action based on the new mode/parameter.
Time switch off according to the time specified after the output shutdown signal.

Upper Computer Shutdown

When the upper PC option is enabled, the UPS analyzes the parameters obtained by USB communication and shuts down the computer. As shown in Figure 2-8-1.

1. The default time mode, the external power off after 20 seconds/power below 30% will send a shutdown signal, the shutdown interface countdown 1 O seconds (or 20 seconds can also be), then the power is higher than 30% can cancel the shutdown, below 30% can not manually cancel. (That is, a power judgment needs to be made at the same time when the command is issued)
2. Power mode, the power consumption to 85% after the external power failure sends a shutdown signal, and the shutdown interface countdown 1 O seconds (or 20 seconds can also be) at this time, the manual can cancel the shutdown instruction. Continue to use the battery power supply to 30% power, then trigger the shutdown command again and cannot be manually cancelled.
(That is, a power judgment needs to be made at the same time when the command is issued)
3. UPS Shutdown Def a ult Lil o current The def a ult value is 200MA. The optional power-on time is 605. After the PC shutdown command is issued, the shutdown countdown will pop up, and the shutdown command can be cancelled.

Figure 2-8-1

Number	Disposition	Function description	Remark
1	Power Off	Shutdown policy for external power failure 0: Shut down based on the remaining battery 1: Shut down the device based on the time after the power failure	UPS internal logical parameters
2	Power Off SOC	Shutdown power threshold for the shutdown policy 0. When the value is lower than this value, shutdown is executed	UPS internal logical parameters
3	Power Off Time	Shutdown delay when the shutdown policy is 0. When the external power failure exceeds this period, the system shuts down the external power supply	UPS internal logical parameters
4	DC_OUT	Device shutdown judgment policy 0: does not judge the shutdown, and keeps the output after sending the shutdown signal 1: determines the time and forcibly shuts down the device after a specified time 2: current judgment, lower than the specified current value after shutdown	UPS internal logical parameters
5	DC_OUT_T	Shutdown Determine the time value of policy 1	UPS internal logical parameters
6	DC_OUT_C	Shutdown Determines the current value of policy 2	UPS internal logical parameters
7	Dev.Psts	0:0 indicates that the external device is powered off 1: Enter 1 to indicate that the external device is powered off	UPS internal logical parameters
8	SW	Shutdown pulse plus or minus	UPS internal logical parameters

		0: low level pulse 1: high level pulse	
9	Pulse duration	Shutdown pulse duration configuration	UPS internal logical parameters
10	Off decision	Call off policy 0: Send off the shutdown signal and then power on, turn off the output 55 to restore power supply 1: Send a shutdown signal and then power on to keep the output off	UPS internal logical parameters
11	Capacitance	Lower than this threshold, U1O and U2O of the UPS are turned off	UPS internal logical parameters
12	Auto Boot	If this parameter is selected, the host starts with the computer	Upper computer software parameters
13	Auto Hide	If this parameter is selected, the host is hidden after startup	Upper computer software parameters
14	Auto Connect	If this parameter is selected, the host automatically and repeatedly connects to the device after startup	Upper computer software parameters
15	PC ShutDown	If this parameter is selected, the host shutdown function is enabled through the host	Upper computer software parameters
16	Time	If this parameter is selected, the host computer determines the delay after power failure and sends the shutdown command after the delay tracing seconds	Upper computer software parameters

Others

- When UINV input voltage> 23.SV, the UPS turns off the battery boost output circuit, uses the UINV to supply power to the outside, and charges the battery.
- When the UPS is in hibernation state, the UPS exits hibernation when the external power supply exceeds 16V.