



SITOP UPS1600

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Uninterruptible 24 V DC Power Supply High-performance, communicative and integrated in TIA

If a power failure occurs, not only the AC power goes out but also the 24 V DC supply and thus the complete automation system as well. Costly downtime and undefined system states can be the result. The new DC UPS modules prevent this scenario by providing reliable backup of the 24 volts for hours. They also offer new possibilities for diagnostics and system integration. The SITOP UPS1600 offers comprehensive functions, open communication via USB or Ethernet/PROFINET and is the first UPS that is fully integrated in TIA.

The DC UPS modules complement 24 V power supplies from SITOP for uninterrupted rated currents up to 40 A from the UPS1100 battery modules based on maintenance-free lead batteries or more temperature-resistant batteries of pure lead. Via the integrated electronics, the UPS1600 automatically detects the type of battery and charges it at the optimal, temperature-controlled charging characteristics. The intelligent battery management system monitors all relevant data, including battery modules connected in parallel. The battery status and various values, such as the voltage, current or residual capacity, are output via the Ethernet/PROFINET interface. Even remote diagnostics by means of a secure network is possible thanks to an integrated web server. The device status of the UPS1600 along with the network connection can be easily monitored in the SINEMA Server network management software.

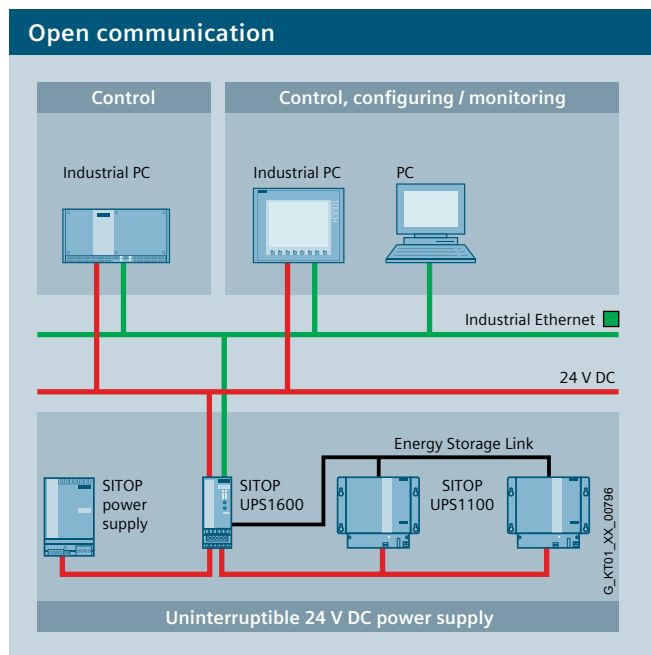
The slim UPS1600 DC UPS module features dynamic overload response, which can be used to activate industrial PCs, for example. The high charging current quickly restores the buffering capacity following a power failure. For use in stand-alone mode, the UPS can be activated from the battery, for example, to start generators.

The benefits at a glance

- Compact DC UPS modules SITOP UPS1600 24 V / 10 A, 20 A and 40 A with digital inputs and outputs, optionally with USB or Ethernet/PROFINET interface with 2 ports
- SITOP UPS1100 battery modules with integrated electronics comprising
 - 24 V / 1.2 Ah, 3.2 Ah, 7 Ah and 12 Ah lead batteries
 - 24 V / 2.5 Ah pure lead batteries for low and high temperatures
- Intelligent battery management with automatic detection of battery modules and selection of optimal, temperature-controlled charging characteristics. Monitoring of operational readiness, battery feed and charge level
- All diagnostic data and alarms available via USB and Ethernet/PROFINET
- High dynamic overload capacity: 3 times rated current for 30 ms and 1.5 times rated current for 5 sec per minute
- High charging currents
- Battery module starting when mains voltage is unavailable
- Remote monitoring with integrated web server
- SITOP UPS Manager (free software download) supports configuration and monitoring with PC-based systems
- Full integration in TIA: Convenient engineering in the TIA Portal, S7 function blocks for integration in user programs and WinCC faceplates

SITOP UPS1600 – the first open...

Whether open or system-integrated, the communicative DC UPS can be integrated into any automation solution. Fully flexible data communication is performed via USB or Industrial Ethernet/PROFINET. Special configuration and visualization software makes it easy to integrate the DC UPS in both PC and PLC based systems. This means you benefit from the high performance of the SITOP UPS1600 in any case.



The advantages of SITOP UPS1600 through integration in PC-based systems

- Easy configuration and monitoring via SITOP UPS Manager, runs on all common Windows systems
- Comprehensive diagnostic capabilities using the UPS status and the connected energy storage
- Connection via USB or Ethernet
- Targeted shutdown of multiple PCs (master-slave principle)
- Closing of software applications
- Integrated OPC server (available soon)
- Remote monitoring via integrated UPS web server, access to device configuration information and operating data, for example, mains/buffer mode, output power, charging current and battery status

SITOP UPS1600 in PC-based automation system:

Configuration and monitoring takes place via SITOP UPS Manager PC software. If a power failure occurs, the 24 V buffer and the integration of the DC UPS in Industrial Ethernet enable controlled shutdown of multiple PCs in master-slave mode.



Remote monitoring via the web server:

The integrated web server provides access to all relevant power supply data; of course, only with appropriate user credentials.



Configuration and monitoring with the SITOP UPS Manager:

The free software tool supports easy configuration of the UPS in the PC system as well as visualization of a wide variety of UPS states, even in the form of trend charts.

Technical specifications – DC UPS modules

			
DC UPS modules	SITOP UPS1600 24 V/ 10 A	SITOP UPS1600 24 V/ 20 A	SITOP UPS1600 24 V/ 40 A
Article numbers			
without interface	6EP4134-3AB00-0AY0	6EP4136-3AB00-0AY0	6EP4137-3AB00-0AY0
with USB interface	6EP4134-3AB00-1AY0	6EP4136-3AB00-1AY0	6EP4137-3AB00-1AY0
with 2 Ethernet/ PROFINET interfaces	6EP4134-3AB00-2AY0	6EP4136-3AB00-2AY0	6EP4137-3AB00-2AY0
Input data			
Rated input voltage $U_{in \text{ rated}}$ Range	24 V DC/ 22 ... 29 V		
Connection threshold for buffering	22.5 V DC $\pm$ 3% (factory setting), adjustable: 21 V, 21.5 V, 22 V, 22.5 V, 23 V, 24 V, 25 V DC or via software.		
Input current $I_{in \text{ rated}}$	Approx. 14 A for max. charging current (3 A)	Approx. 25 A for max. charging current (4 A)	Approx. 46 A for max. charging current (5 A)
Mains buffering			
Adjustable range using rotary coding switch	0.5 min, 1 min, 2 min, 5 min, 10 min, 20 min, max. buffering time or via software		
Behavior on restoration of input voltage after buffering time	Interruption of U_{out} for the automatic restart of PCs or option of no interruption		
On/off control circuit (via external isolated NO contact)	by opening the circuit the buffer mode is terminated		
Starting from battery with input voltage missing (by means of external isolated NO contact)	by closing the circuit the buffer mode is started		
Energy storage units			
Connectable batteries	– coded Siemens types SITOP UPS1100 (max. 6 over Energy Storage Link) – non-coded Siemens types 6EP1935-6M... – other manufacturers		
Output data			
Output voltage in normal operation	Rated input voltage U_{in} - approx. 0.01 x I		
Output voltage in buffering mode	27 V DC (no load); 24 V DC (50% battery rated current); 22 V DC (100% battery rated current); 18.5 V DC (exhaustive discharge protection)		
Output +Bat/-Bat in normal operation	I-U charging characteristic (first constant charging current, then charge retention)		
End-of-charge voltage	Automatic temperature-specific setting with SITOP UPS1100 battery modules		
Output current – rated value – Power boost for 30 ms – Extra power for 5 s/min	0 ... 10 A 30 A 15 A	0 ... 20 A 60 A 30 A	0 ... 40 A 120 A 60 A
Charging current	Max. 3 A automatic adjustment with UPS1100; otherwise selectable 0.3 A, 0.8 A, 3 A	Max. 4A automatic adjustment with UPS1100; otherwise selectable 0.8 A, 1.75 A, 4 A	Max. 5 A automatic adjustment with UPS1100; otherwise selectable 0.8 A, 1.75 A, 5 A
Typical efficiency for normal operation and charged battery	97.70%	98.20%	98.80%
Protection and monitoring			
Reverse polarity protection	Against input voltage U_{in} and against batteries		
Overload / short-circuit protection	Yes, restart in normal operation		
Signaling			
Normal operation/buffer mode	LED 1 (OK/BAT) green/yellow and isolated changeover switch 1		
Charging status (over 85% charged)	LED 2 (BAT>85%) green and isolated changeover switch 3		
Alarm (not ready for buffering)	LED 3 (Alarm) red and isolated changeover switch 2		
Battery status	LED 4 (BAT.FAULT) red and isolated changeover switch 2: Battery defective, yellow: selected buffering time not assured, yellow flashing: Overtemperature		
PROFINET interface	LED 5 (SF) green and LED 6 (RUN)		
Ethernet	LED 7 (P1) green/yellow and LED 8 (P2) green/yellow, link and activity		
General data			
Radio interference level (EN 55022) / noise immunity	Class B / Noise immunity to EN 61000-6-2		
Safety class	Class III (ext. circuit and power supply unit: SELV voltage to EN 60950 required)		
Degree of protection (EN 60529)	IP20		
Ambient temperature during operation with natural convection	-25 ... +70 °C (derating from 60 °C)		
Transport/storage temperature	-40 ... +85 °C		
Dimensions (W x H x D) in mm	50 x 125 x 125		70 x 125 x 150
Weight	0.38 kg without interface, 0.4 kg with USB, 0.44 kg with Ethernet/PROFINET	0.39 kg without interface, 0.41 kg with USB, 0.45 kg with Ethernet/PROFINET	0.65 kg without interface, 0.65 kg with USB, 0.7 kg with Ethernet/PROFINET
Installation	Snaps onto DIN rail EN 50022-35x15/7.5		
Approvals	CE, cULus, CB, ATEX; available soon: cCSAus Class I Div 2, GL, ABS		CE, cULus; available soon: CB, ATEX, cCSAus Class I Div 2, GL, ABS