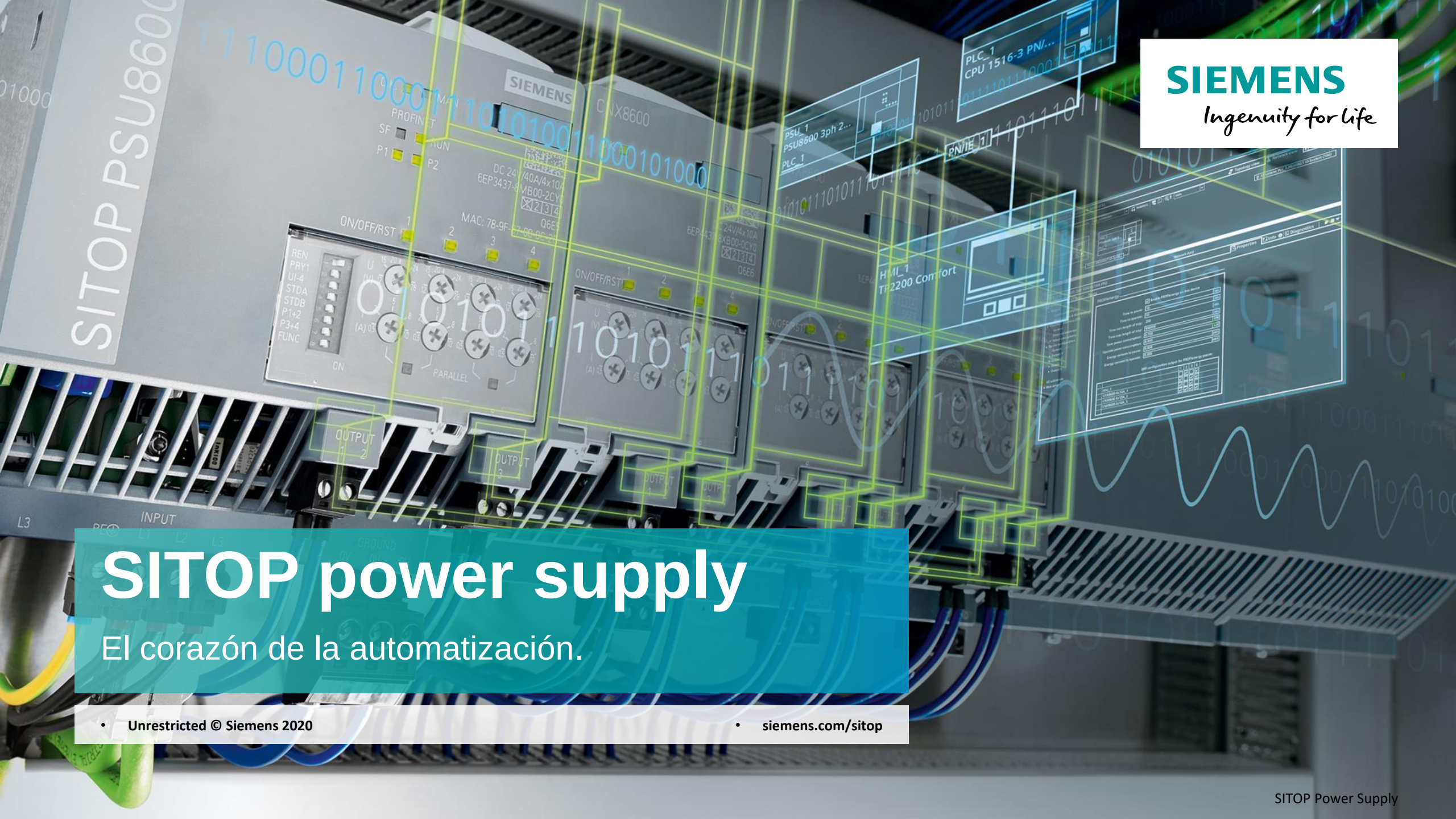

SITOP power supply

El corazón de la automatización.

• siemens.com/sitop

Agenda

1. Portfolio general de SITOP
2. PSU8600, una solución completa
3. PSU6200, una fuente convencional con diagnosis completa
4. Redundancia, concepto y posibilidades
5. UPS1600, respaldo de cargas cuando falla la alimentación
6. Selectividad, protectión de circuitos y localización de fallos
7. Maleta virtual, PSU6200 y SEL1200

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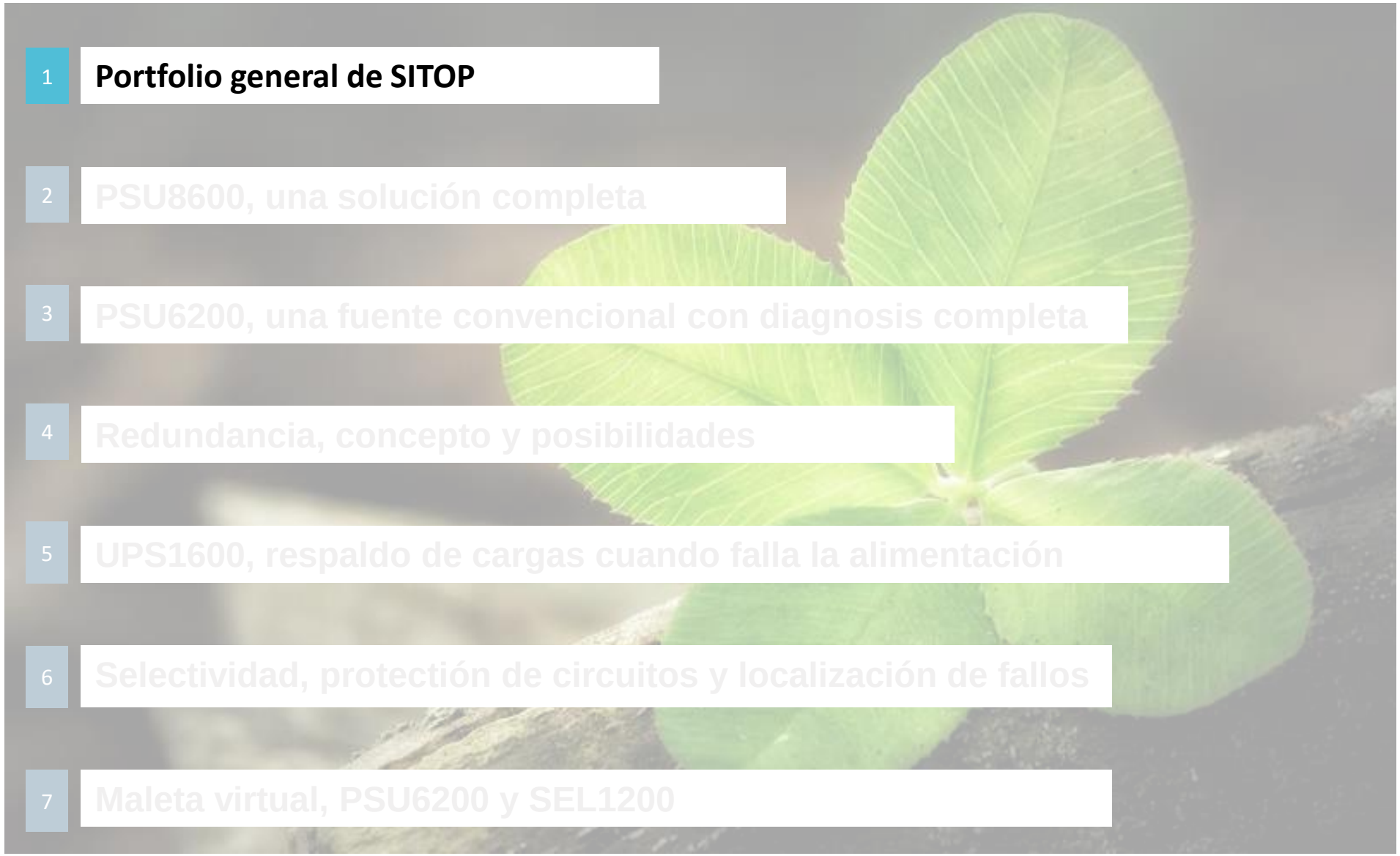

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SITOP – The heart of automation®
Top innovation for over 25 years

SIEMENS
Ingenuity for life

SITOP
The first controlled power supply for the price of an uncontrolled

LOGO!Power
Miniature power supply unit in LOGO!-Design

SITOP flexi
With adjustable output current and controlled current limitation

SITOP select
Reliable selectivity in 24-V-branches with controlled power supply units

SITOP UPS500
Entirely free of maintenance DC-USV with capacitors

SITOP compact
Energy-efficient compact power supply

SITOP UPS1600
Ethernet/PROFINET and complete TIA-Integration

SITOP Manager
Engineering and monitoring software for SITOP power supplies with communication capability

SITOP Bibliothek
for power supply concepts entirely integrated SIMATIC PCS 7

1993 1994 1996 1998 2000 2002 2005 2008 2010 2012 2013 2014 2016 2018 **2019**

SITOP in SIMATIC Design
1-phase power supply for SIMATIC S7-300

SITOP
1- and 3-phase power supply unit with high degree of efficiency

SITOP smart
1-phase standard power supply

SITOP select
Direct integration in the SIMATIC S7-diagnostics

SITOP PSU8600
Power supply system PROFINET and complete TIA-Integration

SITOP DC-USV
USV- and battery modul for undisrupted power supply at removal

SITOP PSU8200
The first modular power supply extendable with signaling contact, buffer-, redundancy- and diagnostic module or DC-USV

SITOP smart
3-phase standard power supply

SITOP PSU6200
The all-around power supply for a wide range of applications

Industrial power supplies for the most diverse automation requirements

SIEMENS
Ingenuity for life

Top reliability

- High plant availability
- Excellent load behavior
- Global certifications
- Add-on modules as protection against faults
- Redundant product solutions
- Global customer service
- Delivery ex stock

Top efficiency

- High degree of efficiency
- Minimized losses – even in no-load operation
- Diagnostics capability
- Compact design
- Optimum support for the planning process with CAX data and TIA Selection Tool, for example

Top integration

- Engineering in the TIA Portal and SITOP Manager
- Visualization in WinCC, PCS 7 library and SITOP Manager
- Communication via Ethernet/PROFINET and OPC UA for integration in automation applications

SITOP power supply – »Developed and produced« in Europe

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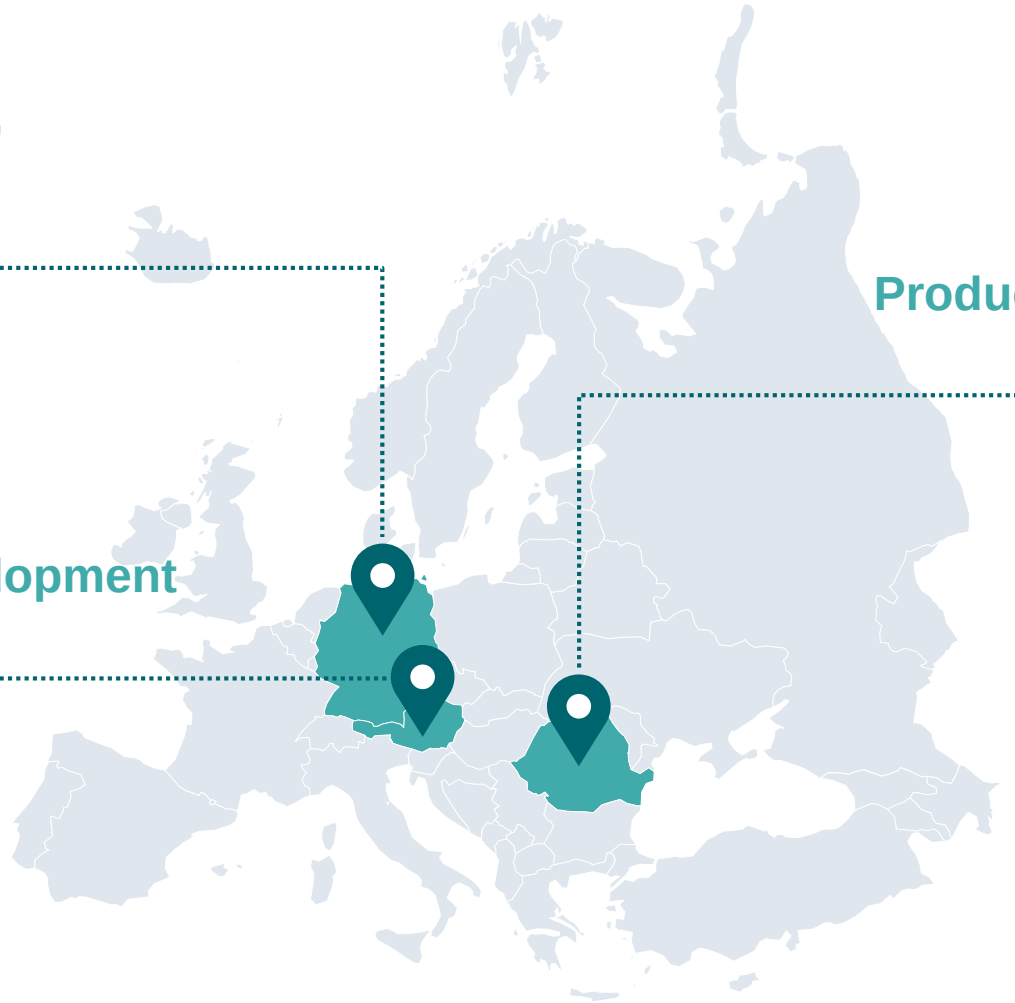
Product Management, Sales and Marketing
Nuremberg, Germany

Production and development
Vienna, Austria



Production and development
Sibiu, Romania

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The optimal power supply for SIMATIC S7 and more

DC/DC converter

SITOP DC/DC converter
Stable supply despite fluctuating DC voltage

Special designs

Special designs
Equipped for special tasks and conditions

… individual extendable to all-round protection

SITOP Redundancy modules

SITOP Selectivity modules

SITOP Buffer module

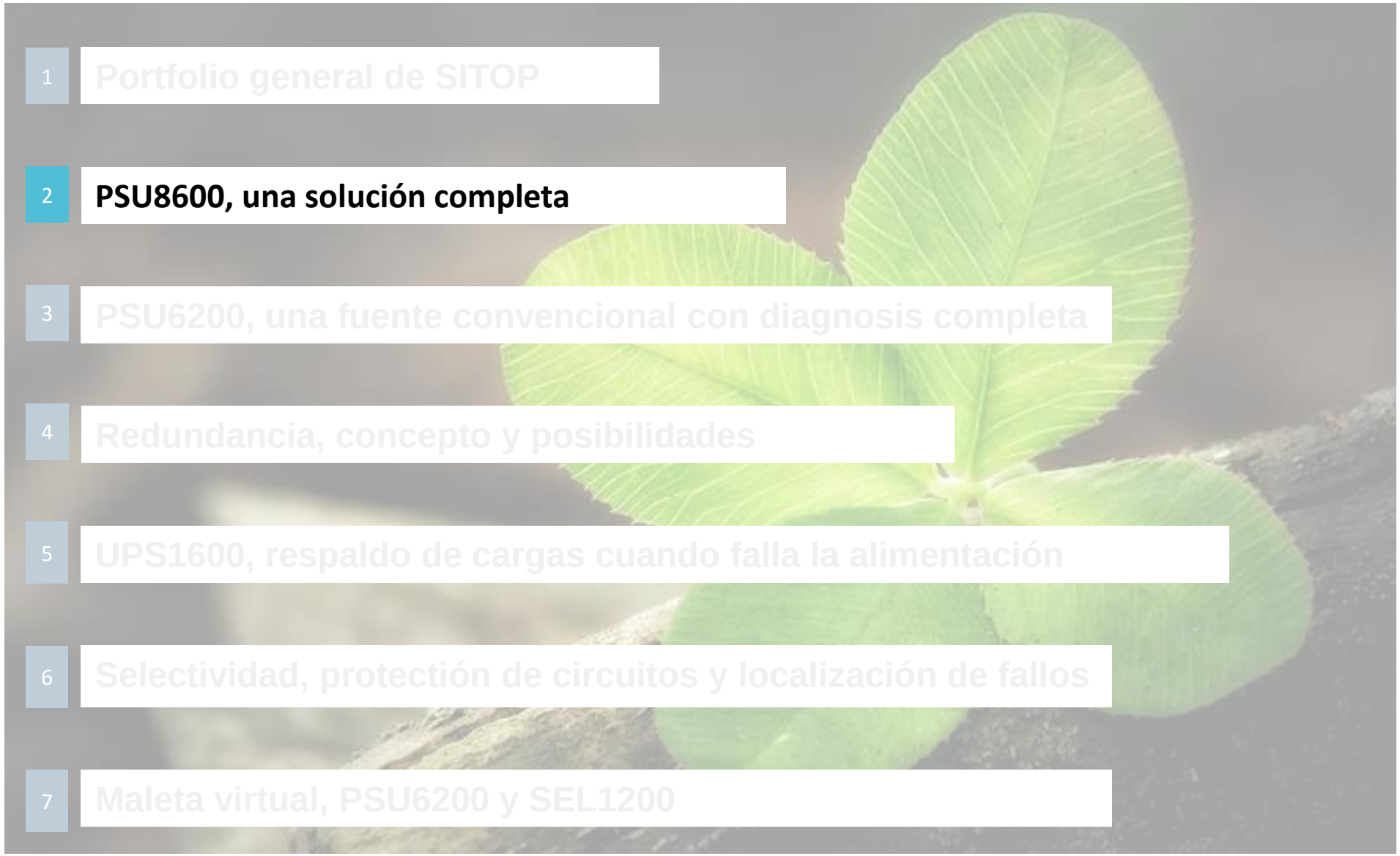
SITOP DCUPS

with capacitors

with battery modules

Failure of a power supply	Overload in 24 V circuit	Power failure on the input side		
		Up to seconds	Up to minutes	Up to hours

Agenda



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Highlights
Unique functions

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Ingenuity for life

Multiple individually configurable outputs with high **efficiency and an extremely narrow width**

Integrated Ethernet/Profinet communication for optimum integration in the machine or plant automation

Integration in TIA Portal saves time and costs during engineering and in operation

Support of **energy management** by capturing energy data and on/off switching of outputs

Complete monitoring and **diagnostics in operation** for preventive maintenance

Modular expansion without wiring effort for selective monitoring of the outputs and **buffering of power failures**

…with SITOP PSU8600, the power supply becomes an integral part of automation solutions

Customer benefits
Integrated value-added

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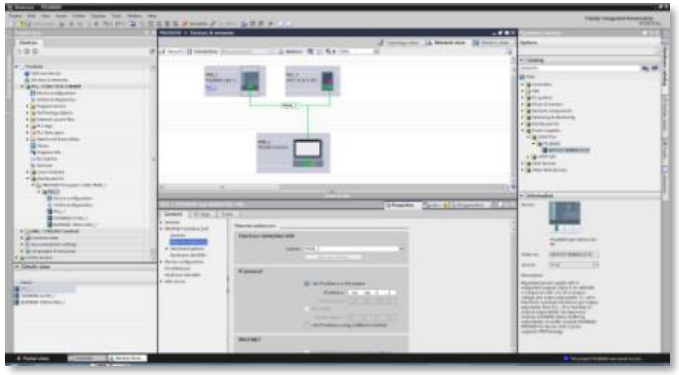
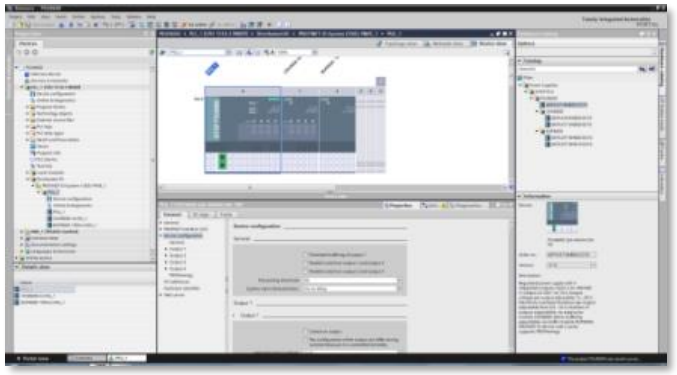
Ingenuity for life





Top integration

- Integrated PROFINET communication permits comprehensive data exchanges.
- Complete integration into TIA enables simple engineering in TIA Portal, comprehensive evaluations of operational data and diagnostic information as well as power management functions.
- Integrated web server allows easy remote diagnosis via the Internet
- Flexible, open and manufacturer independent communication enabled by OPC UA Server

Customer benefits
Integrated value-added

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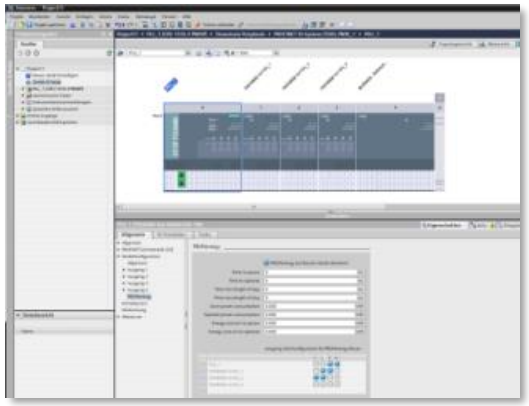
Ingenuity for life

Top reliability

- Outputs can be individually monitored which leads to reduced downtimes.
- System-specific buffer modules bridge brief power failures.
- System-specific UPS module and battery modules bridge mains failures up to hours
- Comprehensive diagnostics ease preventive maintenance.

Customer benefits
Integrated value-added

SIEMENS
Ingenuity for life



Top efficiency

- Compact design saves space in the control cabinet.
- System Clip Link reduces the amount of wiring.
- Comprehensive software support simplifies configuration and design.
- Can be configured manually for commissioning.
- High functionality opens up new possibilities – including additional supply voltages.
- PROFIenergy and power management support ensure efficient energy use.

Hardware
Modular system

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Ingenuity for life

Options

Base units PSU8600

1AC 4x5 A	3AC 1x20 A	3AC 1x40 A	3AC 4x5 A	3AC 4x10 A

CNX8600

4x5 A 4x10 A 8x2.5 A

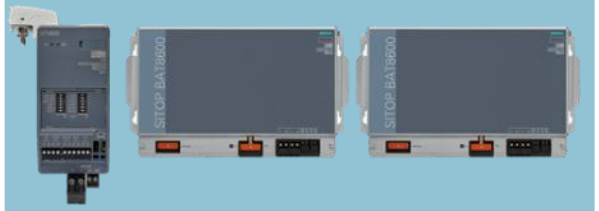
NEC Class 2

BUF8600

Electrolytic capacitor		Double-layer capacitor	
100 ms/ 40 A	300 ms/ 40 A	4 s/ 40 A	10 s/ 40 A

UPS8600/BAT8600

UPS8600	BAT8600	BAT8600
	PB 10 min/960 W	LiFePO4 14 min/960 W



Maximum configuration

PSU8600

CNX8600

Max. 36 outputs (basic device plus 4 CNX 8-times modules)

BUF8600 & UPS8600/BAT8600

Buffer modules: buffering of milliseconds
Uninterruptible power supply: bridging of mails failure about 70 min/960 W
→ Buffer module avoids discharge of battery modules in case of short-term brownouts and guarantees long lifetime of battery modules

System integration

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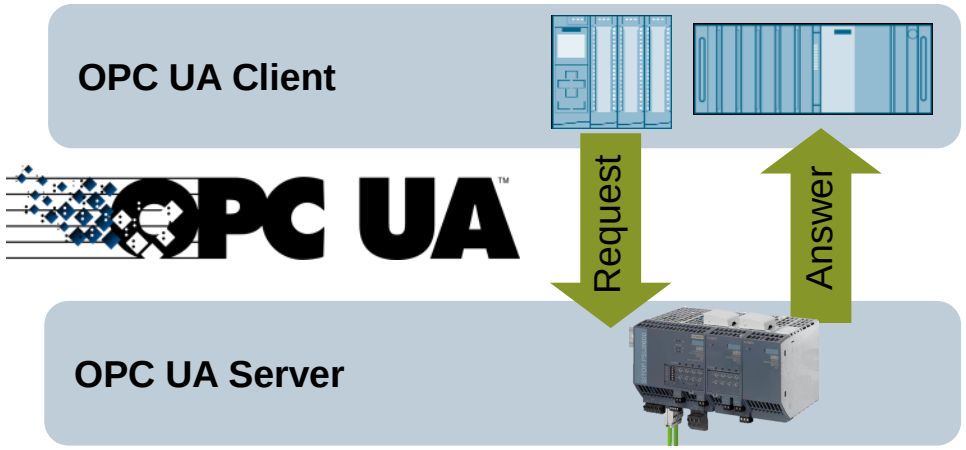
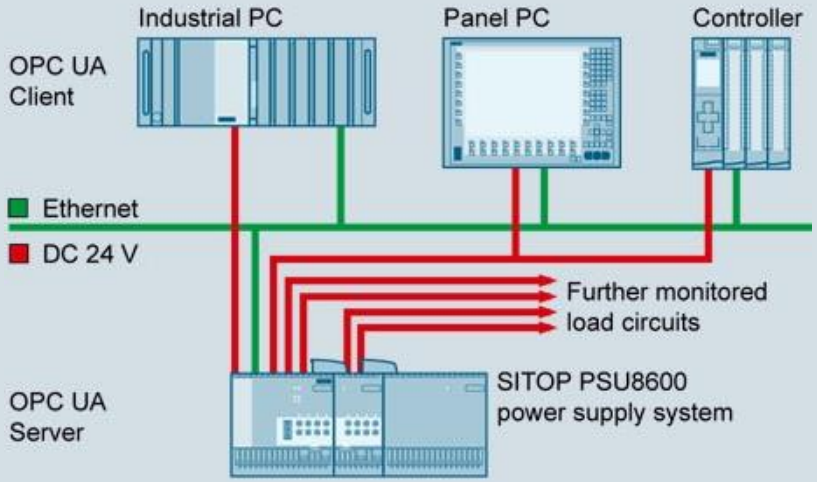


- Communication via Ethernet interface and OPC UA or PROFINET
- Complete integration in networked automation applications
- Configuration of device. Re-configuration also in ongoing process
- Setting of values at the power supply
- Supply of operation and diagnostic data
- But also: open manufacturer independent communication via OPC UA (certified) and remote monitoring/diagnosis

Network-compatible power supply system PSU8600



Program-controlled settings:

- Voltage of each output
- Switching on and off each output

Diagnostic options:

- Overload states and advance warning of an overload
- Status message for outputs
- Power failures
- Recording of energy data
- Monitoring of input voltage

Ordering data and logistics
SITOP PSU8600

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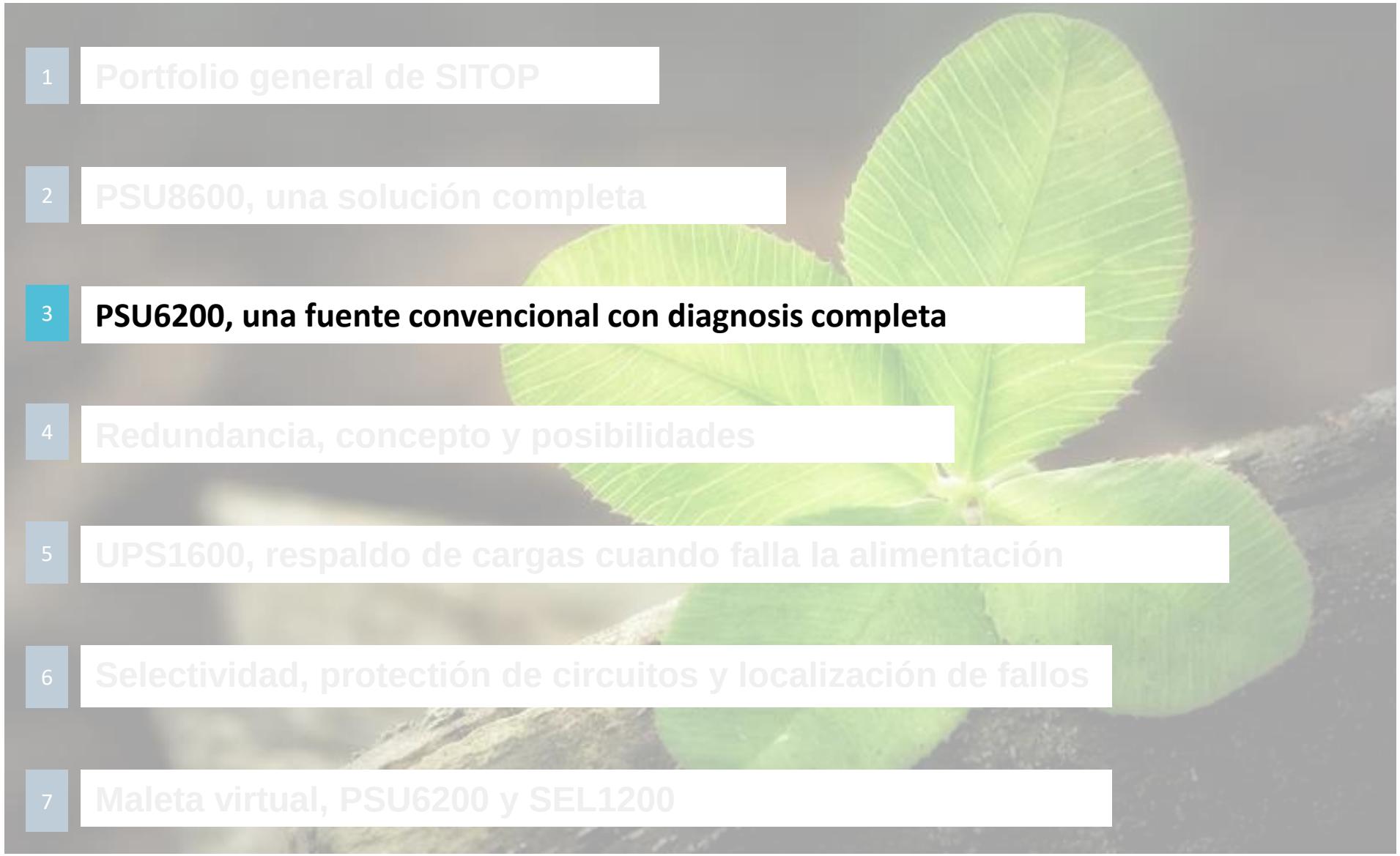
Ingenuity for life

	Basic units					Can be expanded using additional modules (can be combined as required)									
						max. 4			max. 2					max. 5	
															
	PSU8600 basic unit					**CNX8600 expansion modules**			**BUF8600 buffer modules**				**UPS 8600**	**Battery module BAT8600**	
	1 ph. DC 24 V/ 20 A 4 x 5 A	3 ph. DC 24 V/ 20 A 4 x 5 A	3 ph. DC 24 V/ 20 A	3 ph. DC 24 V/ 40 A 4 x 10 A	3 ph. DC 24 V/ 40 A	4 x 5 A	4 x 10 A	8 x 2,5 A	100 ms bei 40 A	300 ms bei 40 A	4 s bei 40 A	10 s bei 40 A		Pb, 10 min./ 960 W	LiFePO4, 14 min./ 960 W
	6EP3336 -8MB00- 2CY0	6EP3436 -8MB00- 2CY0	6EP3436 -8SB00- 2AY0	6EP3437 -8MB00- 2CY0	6EP3437 -8SB00- 2AY0	6EP4436 -8XB00- 0CY0	6EP4437 -8XB00- 0CY0	6EP4436 -8XB00- 0DY0	6EP4297- 8HB00- 0XY0	6EP4297- 8HB10- 0XY0	6EP4293- 8HB00- 0XY0	6EP4295- 8HB00- 0XY0	6EP4197- 8AB00- 0XY0	6EP4145- 8GB00- 0XY0	6EP4143- 8JB00- 0XY0
	… can be expanded individually depending on requirements														

Agenda



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SITOP power supplies

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Advanced

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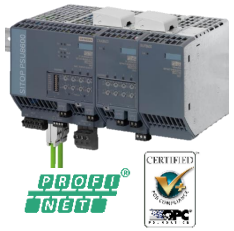

SITOP PSU8200
The technology power supply for demanding solutions

Standard

SITOP PSU6200
The all-around power supply for a wide range of applications

New: 3 phase

SITOP smart
The high-performance power supply

Basic

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The cost-effective basic power supply

LOGO!Power
The flat power supply for distribution boards

SITOP compact
The slim power supply unit for control boxes

SIMATIC design

SITOP in SIMATIC design
The optimal power supply for SIMATIC S7 and more

DC/DC converter

SITOP DC/DC converter
Stable supply despite fluctuating DC voltage

Special designs

Special designs
Equipped for special tasks and conditions

… individual extendable to all-round protection

SITOP Redundancy modules

SITOP Selectivity modules

SITOP Buffer module

SITOP DCUPS
with capacitors

with battery modules

Failure of a power supply	Overload in 24 V circuit	Power failure on the input side		
		Up to seconds	Up to minutes	Up to hours

SITOP PSU6200 –
Many features – Top device

SIEMENS
Ingenuity for life

DC o.k. status indicator (LED)

Diagnostics monitor
(utilization, operating hours)

Biunique terminal labeling

Direct side-by-side mounting

Data Matrix Code

1AC or 3 AC wide-range input
DC capable

Robust input

Product identification label
(Article no.: 6ES7193-6LF30-0AW0)

Push-in terminals

Third minus terminal

Rugged metal enclosure

Diagnostics interface for connecting to the automation

Setting options
- COM (signaling relay or diagnostics interface)
- HV (voltage level switch for DC o.k.: 20 V/23 V)
- PO (parallel operation on or off)

Output voltage setting

Active PFC (Power Factor Correction) as of 10 A

SITOP PSU6200 –
Product highlights at a glance

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Ingenuity for life

Diagnostics monitor
- LED display DC o.k., indication of utilization and operating hours

Diagnostics interface
- Provision of important operating parameters (e.g. power, voltage, overload, etc.)

High degree of efficiency
- Up to 96%

Push-in terminals
- Easy, time-saving installation without need for tools
- Separate ground terminal

Robust AC input
- Active PFC
- In case of phase failure constant operation with 2 phases possible

AC

Narrow overall width
- For direct side-by-side mounting without lateral installation clearances

Integrated product family
- Comprehensive range of products for a wide range of requirements

DC capability / wide range input
- Flexible use also on DC networks
- Reliable in spite of power fluctuations

DC

High performance. Focused diagnostics. The all-around power supply for a wide range of applications

Diagnostics interface – Provision of the essential operating parameters and status

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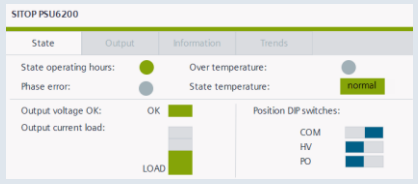
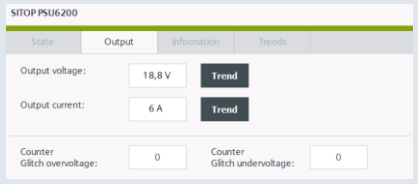




Transmission to only one digital input on the PLC (every 3 seconds) → Easy, space-saving and economical integration into the PLC or plant and machine monitoring

Evaluation by means of preassembled function block as ready-to-use code for SIMATIC S7 (simple adaptation for external PLCs) →

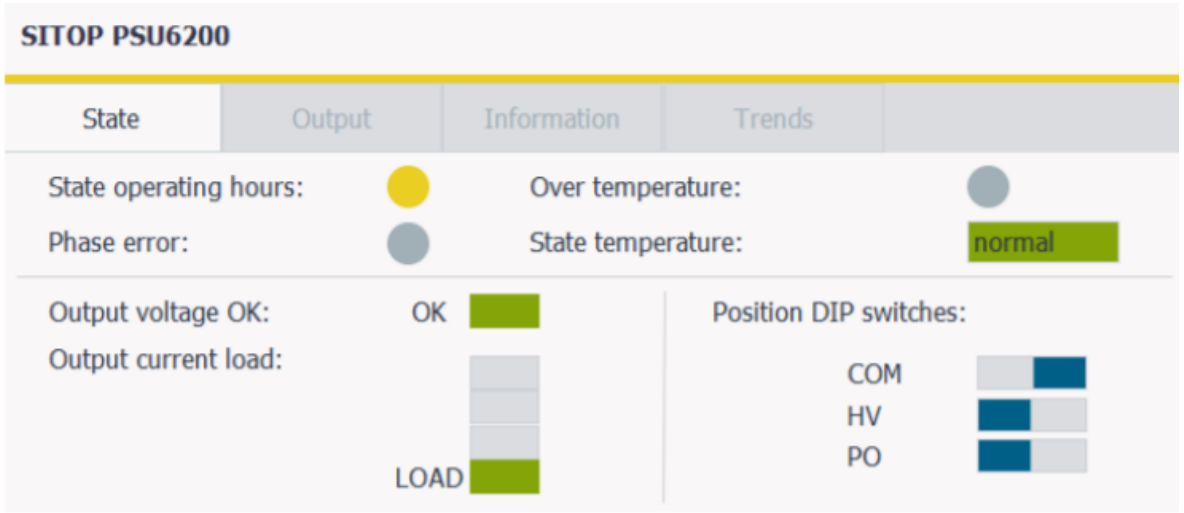
- Clear presentation of the operating parameters for preventive maintenance
- Fast and reliable integration into PLC
- Instructions in the Siemens Online Support (SIOS) for integration of the function block

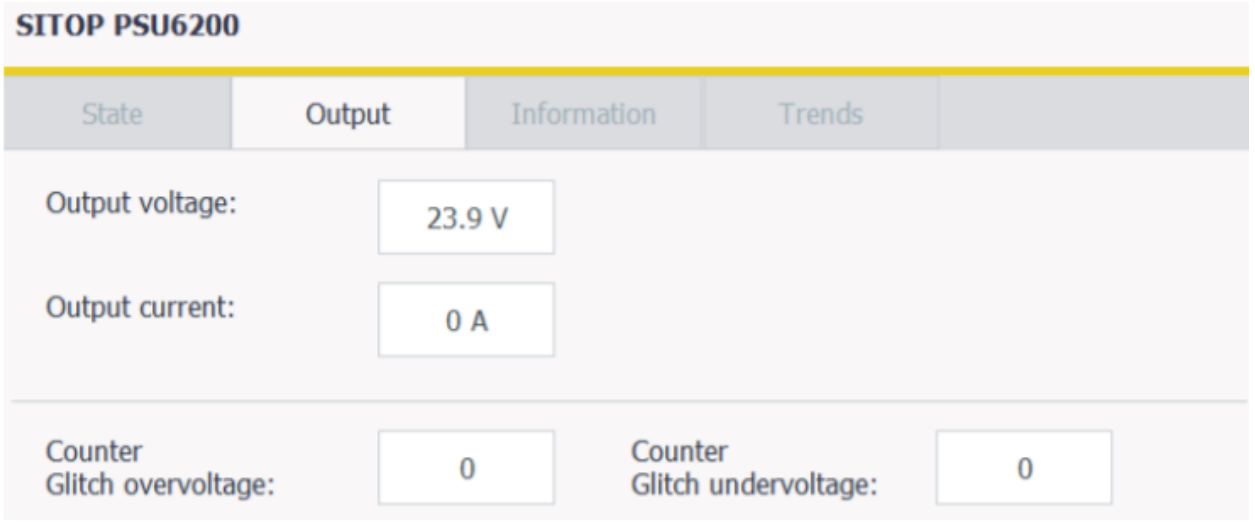
Operating parameters (available as of 10 A device)

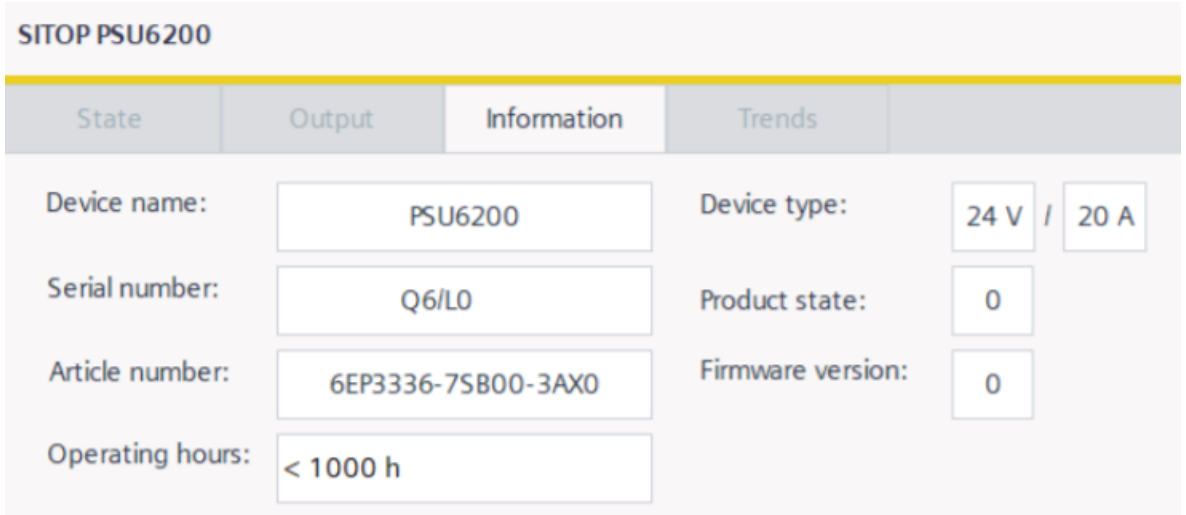
Output voltage	Resolution 100 mV
Output current	Resolution 1 A
Temperature	< 40° C/< 60° C/< 70° C/overtemperature
Operating hours	Less/more than 90 % of the total service life
DC voltage deviation	Detection of short-term undervoltage or overvoltage at the output end (signal in case of undervoltage as of 20 V or 23 V, in case of overvoltage as of 33 V)
SITOP PSU6200 type	Manufacturing date, article number

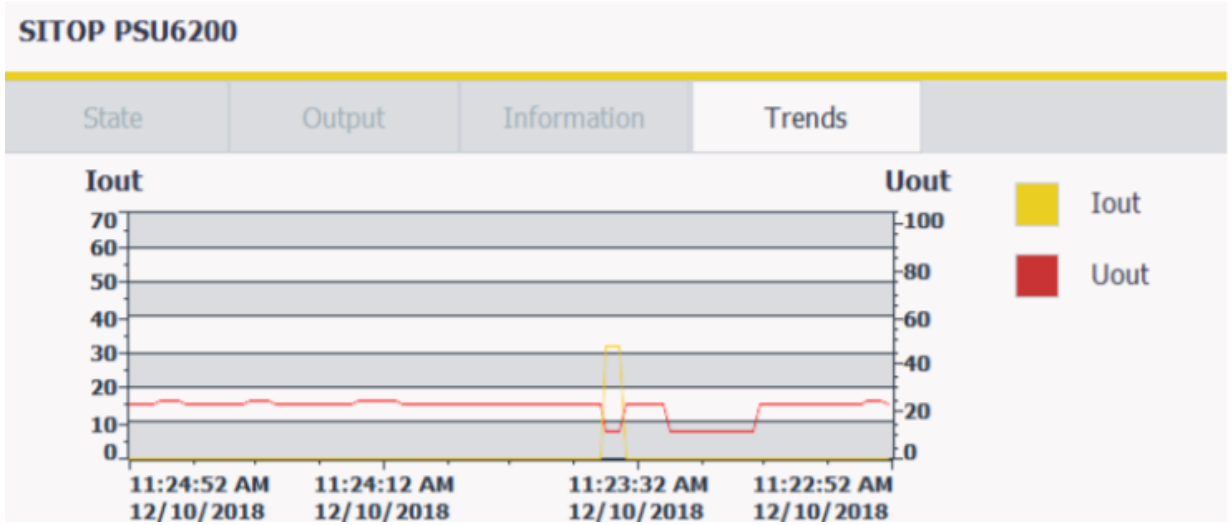
Function blocks for SIMATIC S7-1200, S7-1500, S7-300
Faceplate for PSU6200 available free of charge in SIOS

SIEMENS
Ingenuity for life









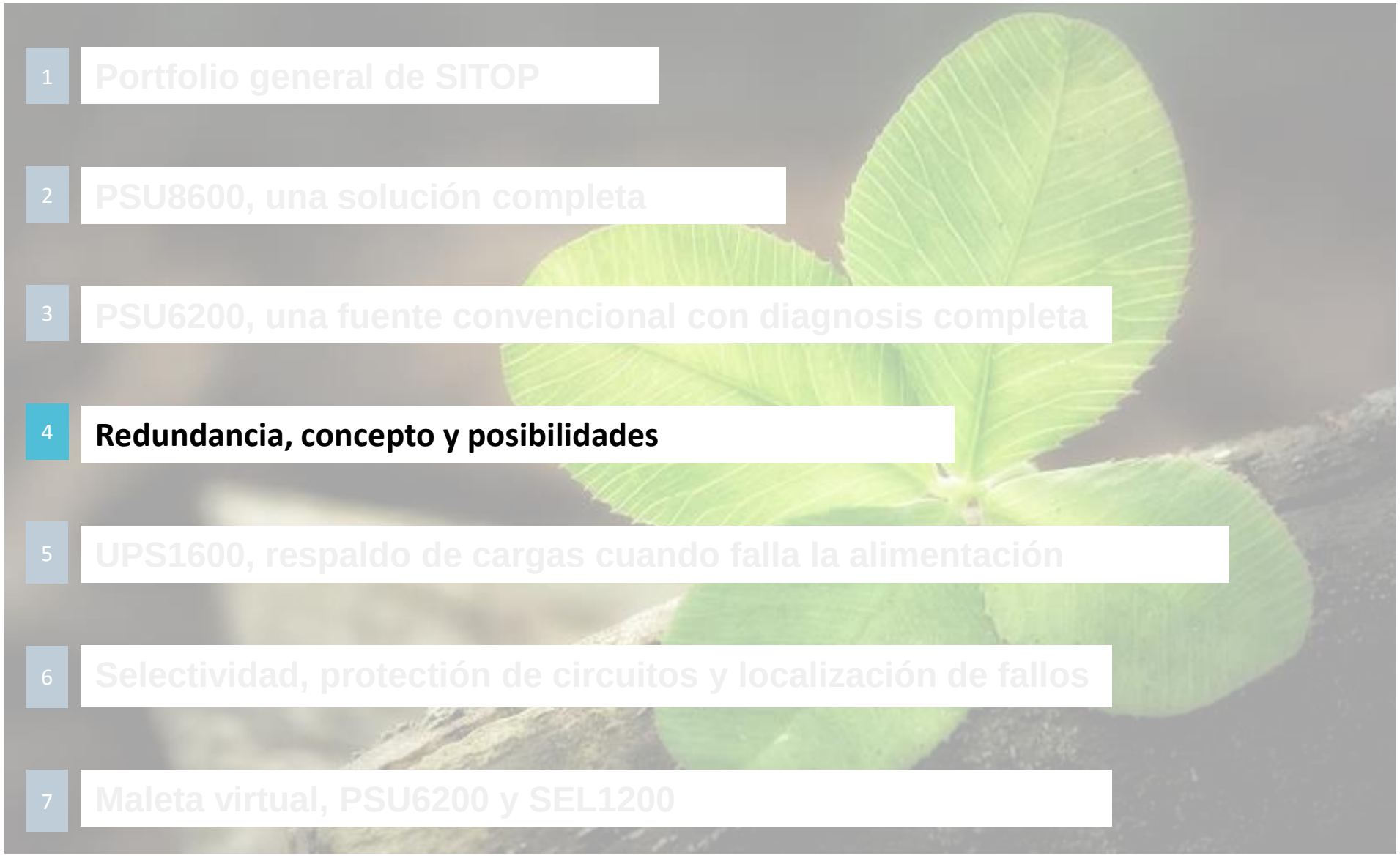
Integrated product family SITOP PSU6200 – Comprehensive product range

SIEMENS
Ingenuity for life

	SITOP PSU6200	
	Single-phase	3 phases
Input	85 V **AC** 264 V 85/99/110 V **DC** 275 V	323 V **AC** 576 V 450 V **DC** 600 V
Output	• **12 V:** 2 A, 7 A, 12 A • **24 V:** 1,3 A , 2,5 A , 3,7 A, 5 A , 10 A, 20 A • 120 % continuous output power up to 45° C	• **24 V:** 5 A, 10 A, 20 A • 120 % continuous output power up to 45° C

- Standardized family design for all product variants
- Uniform handling
- Simple planning by means of fast and intuitive selection and configuration including for different power requirements

Agenda



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		Up to seconds	Up to minutes	Up to hours

Redundancy modules SITOP RED1200 Highlights

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Redundant design in case of power supply failure
- Stable DC voltage by redundant switching of two equal power supplies

Redundant design in case of power failures
- Feed in by power supplies out of two different power networks

Flexible Use
- Redundant power supply design for DC voltages from 12 to 48 V

new

Decoupling diode for parallel connection of more than two power supplies to increase current
- Protection against back current

Protecting diode for serial connection of two power supplies to increase voltage
- For protecting power supplies even in case of minimally time-delayed switch on

new

Simple commissioning
- Narrow width
- Push-In connection technology

new

Solutions for different performance areas
- SITOP RED1200 20 A: decoupling of 1 or 2 power supplies
- SITOP RED1200 40 A: decoupling of 1 or 2 power supplies

Redundant design offer high security for 24 V supply

SITOP redundancy modules
Why do power supplies have to be decoupled??

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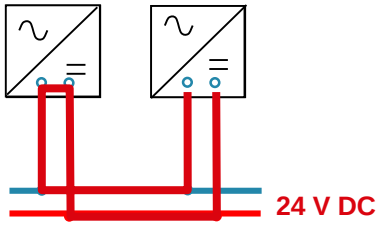
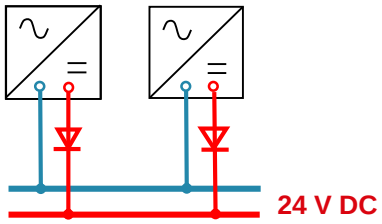


Simple parallel connection without decoupling:

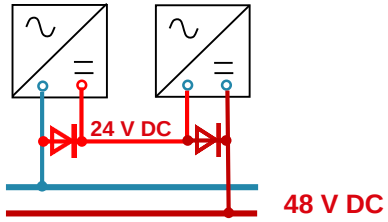
- The power outage could have been caused by a short circuit on the secondary side in the device
- The short circuit affects the intact device and overloads it
- The 24 V supply breaks down



Parallel connection with decoupling:

- In case of a short circuit in a defective power supply, the diode prevents the intact device from being affected
- The 24 V supply remains intact

Only for SITOP redundancy module RED1200



Serial connection with protecting diodes – excepting SITOP PSU6200, 20 A:

- In case of not absolutely simultaneous power-up of the power supplies the diodes prevent the supply of current from the faster power supply in the „–“output of the slower power supply. So also an impermissibly discharge of the output electrolytic capacitor within the slower power supply is prevented. (Catalog KT10.1, Technical information and configuration). The SITOP RED1200 reduces the reverse voltage at the electrolytic output capacitor on less than 1 V.
- For output voltages of 12 V, 24 V and 48 V an voltage increase on 24 V or 48 V or 96 V is enabled

SITOP redundancy modules – protection of consumers in case of power supply failure

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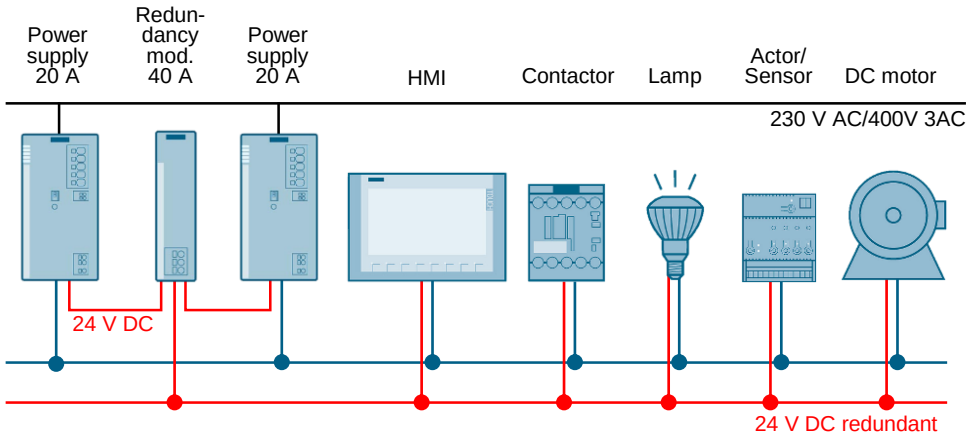
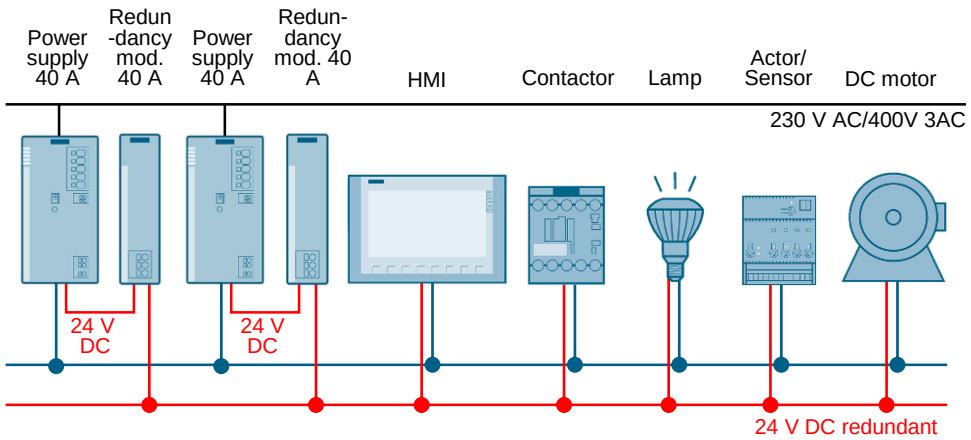
Ingenuity for life





Redundancia 20+20=40A

Redundant design in case of power supply failure

- Protection by two equal power supplies up to max. 20 A
  → use of one redundancy module
  or
- Protection by two equal power supplies bigger than 20 A
  → use of two redundancy modules

Redundancia 40+40=80A

Supply of all consumers by two redundant connected power supplies feeding in each with circa 50 %

Stable DC voltage by redundant connection of two equal power supplies even in case of power supply failure

Redundancy module decouples the both power supplies in case of power supply defect

SITOP redundancy modules
protection of consumers in case of power failure

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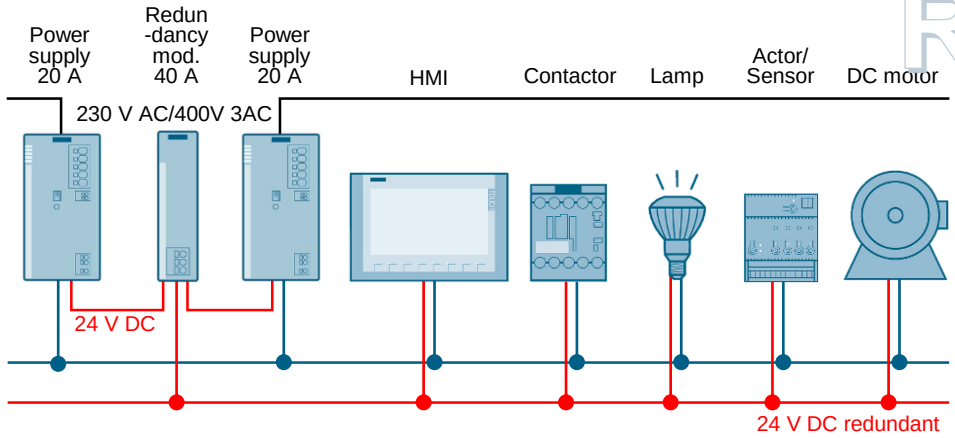
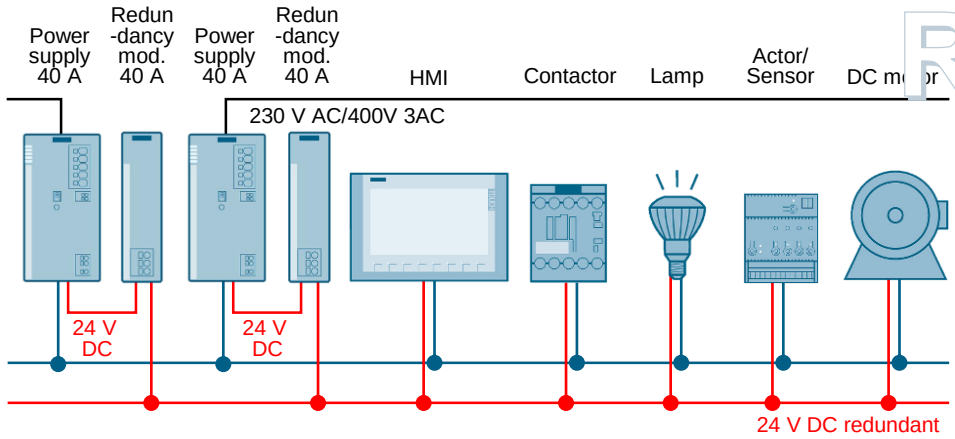
Ingenuity for life





Redundancia 20+20=40A

Redundant design in case of power failure

- Protection by two equal power supplies up to max. 20 A fed in out of two different power networks
  → use of one redundancy module

or

- Protection by two equal power supplies bigger than 20 A fed in out of two different power networks
  → use of one redundancy modules

Redundancia 40+40=80A

Supply of all consumers by two redundant connected power supplies being fed in out of two different power networks suppying each with circa 50 %.

Stable DC voltage by redundant connection of two equal power supplies even in case of power supply failure.

Redundancy module decouples the both power supplies in case of power supply defect.

SITOP redundancy modules – decoupling or protecting diode in case of parallel or serial connection

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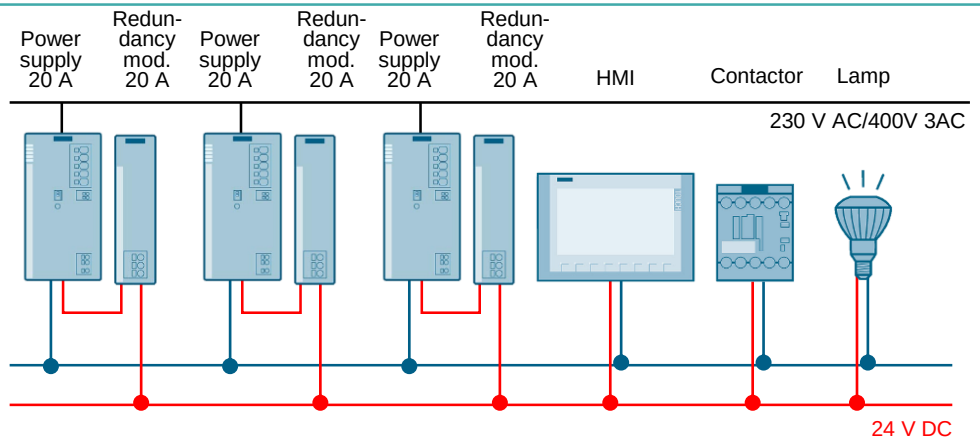
Redundancia n+1



Decoupling diode for parallel connection of more than two power supplies to increase current

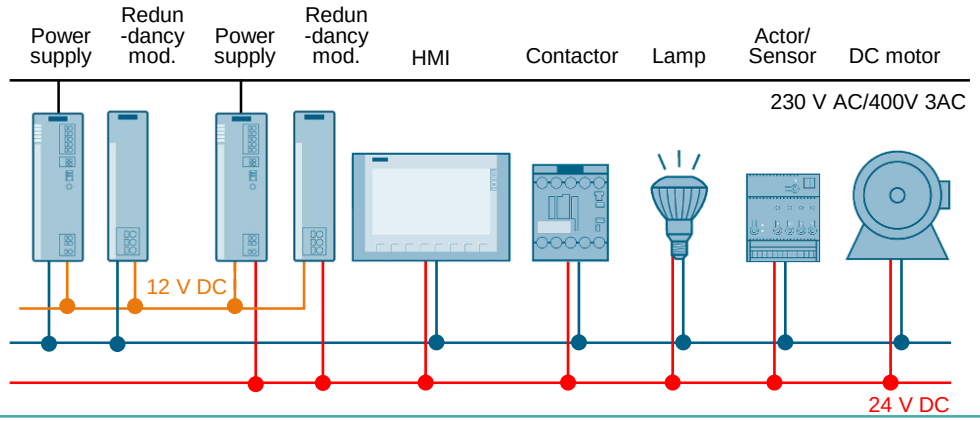
- Performance increase by parallel connection of divers power supplies from 3 x 20 A on 60 A
- For redundant protection: load design for 2 x 20 A = 40 A

→ Protected supply of connected loads by protection diode per power supply

→ Redundancy module prevents recovery current in case of failure

Only for SITOP redundancy module RED1200

Duplicar voltaje



Protecting diode for serial connection of two power supplies to increase voltage

- Voltage increase by serial connection from 12 V to 24 V DC

→ Protection of power supplies even in case of minimally time-delayed switch on

Redundancy module SITOP RED1200
Features

SIEMENS
Ingenuity for life

Direct side-by-side mounting

Data Matrix Code

Push-in terminals

DIN rail mounting

Product identification label

Compact design in metal enclosure

DC supply 12 – 48 V, source 1

DC supply 12 – 48 V, source 2 (1)

Redundant DC output

Redundancy modules SITOP
Technical data

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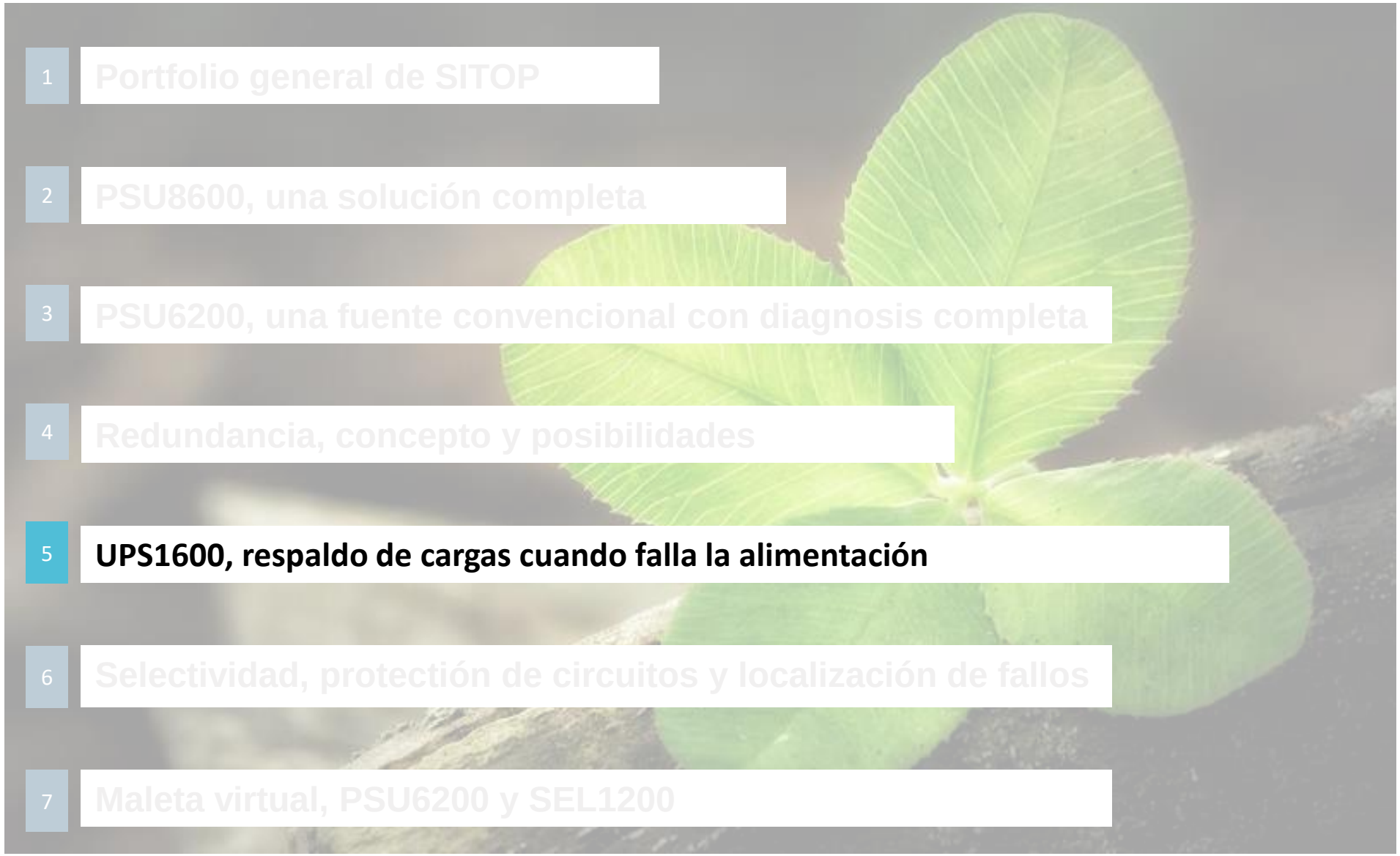
Ingenuity for life

					
	Redundancy modules SITOP RED1200		**Redundancy modules SITOP PSE202U**		
Article No.	6EP4346-7RB00-0AX0	6EP4347-7RB00-0AX0	6EP1964-2BA00	6EP1962-2BA00	6EP1961-3BA21
Rated input voltage – Range	DC 12 V, 24 V, 48 V DC 3…100 V	DC 12 V, 24 V, 48 V DC 3…100 V	DC 24 V DC 19…29 V	DC 24 V DC 19…29 V	DC 24 V DC 24…28,8 V
Relays contact	-	-	Yes	Yes	Yes
LED signal	-	-	“Infeed 1 and 2 o.k.“	“Infeed 1 and 2 o.k.“	“Infeed 1 and 2 o.k.“
Switching threshold	-	-	Between 20 and 25 V adjustable	Between 20 and 25 V adjustable	Between 20 and 25 V adjustable
Decoupling of connected power supplies (p.s.)	Two p.s. each up to 10 A or one p.s. up to 20 A	Two p.s. each up to 20 A or one p.s. up to 40 A	Two p.s. each up to 5 A or one p.s. up to 10 A	Two p.s. each up to 40 A or one p.s. up to 40 A	Two p.s. each up to 20 A or one p.s. up to 40 A
Limitation of output	-	-	-	NEC Class 2 Limit (100 VA)	-
Rated output current	20 A (total output current)	40 A (total output current)	10 A (total output current)	3.5 A[1)]	40 A (total output current)
Efficiency at rated values, approx.	Ca. 97,5 %	Ca. 97,5 %	Ca. 97 %	Ca. 95 %	Ca. 97 %
Connection technology	Push-in terminal	Push-in terminal	Screw terminal	Screw terminal	Screw terminal
Radio interference suppression (EN 55022)	Class B	Class B	Class B	Class B	Class B
Reverse voltage protection	200 V	200 V	52 V	52 V	52 V
Degree of protection (EN 60529)	IP20	IP20	IP20	IP20	IP20
Ambient temperature	-25°C ... + 70 °C	-25°C ... + 70 °C	–20…+70 °C	–20…+70 °C	–25…+60 °C
Dimensions (W x H x D) in mm	35 x 135 x 125	45 x 135 x 125	30 x 80 x 100	30 x 80 x 100	70 x 125 x 125
Certification	CE, cULus, DNV GL, ABS	CE, cULus, DNV GL, ABS	CE, cULus	CE, cULus, NEC Class 2	CE, cULus, cCSAus Class I Div 2, ATEX, IECEx, DNV GL, ABS

[1)] Max. 8 A summation current in fault case in accordance with NEC Class 2

Agenda



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2. PSU8600, una solución completa
3. PSU6200, una fuente convencional con diagnosis completa
4. Redundancia, concepto y posibilidades
5. **UPS1600, respaldo de cargas cuando falla la alimentación**
6. Selectividad, protectión de circuitos y localización de fallos
7. Maleta virtual, PSU6200 y SEL1200

Power supply SITOP
Portfolio overview

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Ingenuity for life

Power supplies for every requirement

SITOP compact
Slim power supply for control boxes

LOGO!Power
The Flat power supply for distribution boards

SITOP lite
The cost-effective basic power supply

SITOP smart
The high-performance standard power supply

SITOP modular
The technology power supply for demanding solutions

SITOP in SIMATIC design
The optimal power supply for SIMATIC S7 and more

Special Design, for special use
Equipped for special tasks and conditions

to 100 Watt | **to 1000 Watt**

… individual extendable to all-round protection

SITOP Redundancy modules

SITOP Selectivity modules

SITOP Buffer module

with capacitors

SITOP DC UPS with battery modules

Failure of a power supply | **Overload in 24 V circuit** | **Power failure on the input side**

up to seconds | up to minutes | up to hours

For every range of application there is an appropriate energy storage unit

SIEMENS
Ingenuity for life

SITOP PSE201U buffer module SITOP BUF8600 buffer module with electrolytic capacitors	SITOP UPS500S / SITOP UPS500P / SITOP BUF8600 buffer module with double-layer capacitors	SITOP UPS1600 with lead batteries or lithium batteries
▪ Inexpensive protection against power failures up to seconds ▪ High load current up to 40 A ▪ SITOP PSE201U supports the power supply unit for temporarily increased power requirements	▪ Saving process data and correct shutdown of applications up to minutes ▪ Totally maintenance-free ▪ Long life even at high temperatures ▪ High ambient temperature up to +60 °C ▪ No ventilation of the installation site required since no gas is emitted ▪ Decentralized use without control cabinets ▪ Software tool for easy configuration and complete integration into PC-based systems	▪ Buffering up to hours to continue processes or to start generators ▪ Optional communication via USB or Industrial Ethernet/PROFINET ▪ Easy configuration with automatic detection of battery modules ▪ Highly secure due to monitoring of operating status ▪ Remote monitoring via Web server ▪ Engineering in PC-based systems ▪ Producer-independent communication via OPC UA Server ▪ Complete integration into TIA
Bridging grids with brief voltage fluctuations	**Bridging of power failures for organized shutdown of systems**	**Bridging of power failure for continuous plant operation**

SITOP UPS1600
Mains buffering secures continuous plant operation

SIEMENS
Ingenuity for life

- PC integration via USB or Ethernet/PROFINET
- Complete system integration into TIA
- Platform independent configuration via integrated Web- or OPC UA Server

- Intelligent battery management system for optimal charging and monitoring via „Energy Storage Link“
- Lithium batteries for long lifetime, even at high temperatures
- High dynamic overload capacity according to SITOP modular and smart

…with SITOP uninterruptable power supplies

SITOP UPS1600
Functions and benefits - UPS1600

SIEMENS
Ingenuity for life

SITOP UPS1600	**24 V DC/ 10 A , 20 A and 40 A**
Overload response :	**Power Boost : 3 x I_{rated} for 30 ms** **Extra Power: 1,5 x I_{rated} for 5 s/ min**
Interfaces :	**digital inputs and outputs, optionally with USB or Ethernet/PROFINET**
Dimensions in mm: (WxHxD)	**50 x 125 x 125 (10 A, 20 A)** **70 x 125 x 150 (40 A)**

Feature/Function		Benefit
Bridging up to hours	▶	Uninterrupted plant operation even in case of power failure
All diagnostic data and alarms available via USB and Ethernet/PROFINET	▶	All diagnostic data and alarms can be communicated and analyzed
High dynamic overload capacity according to SITOP modular and smart	▶	Trouble-free plant operation even for temporarily increased power requirements
OPC UA server functionality	▶	Flexible, producer-independent communication
Integrated Web server	▶	Remote diagnostics via Internet
SITOP UPS Manager	▶	Easy configuration and monitoring
System integration into TIA	▶	Saves time and money in planning and operation
Integration into SIMATIC PCS 7 via SITOP library	▶	Saves time and money in planning and operation

SITOP UPS1600
Functions and benefits - UPS1100

SIEMENS
Ingenuity for life

Service life of energy storage unit			
When capacity falls to 50% of original capacity, depending on battery temperature, approx.			
Ambient temperature	**Lead battery**	**Pure lead battery**	**LiFePo-battery**
20 °C	4 years	10 years	15 years
30 °C	2 years	7 years	10 years
40 °C	1 years	3 years	9 years
50 °C	0,5 years	1,5 years	2 years
60 °C		1 year	

Feature/Function	Benefit
Bridging up to hours, depending on load current	Uninterrupted plant operation even in case of power failure
Battery modules 1,2 Ah – 12 Ah with lead batteries	Low cost, maintenance-free and reliable battery
Battery module 2,5 Ah with pure lead batteries	High ambient temperature for applications up to 60 °C
Battery module 5 Ah with LiFePo-batteries (lithium iron phosphate)	Long lifetime, even at high temperatures
Battery module UPS1100 with integrated electronics and communication with UPS1600 via „Energy Storage Link“	Automatic detection through UPS1600 and communication of operating status
UPS1600 with intelligent battery management for UPS1100	Optimal, temperature-dependent charging and continuous monitoring

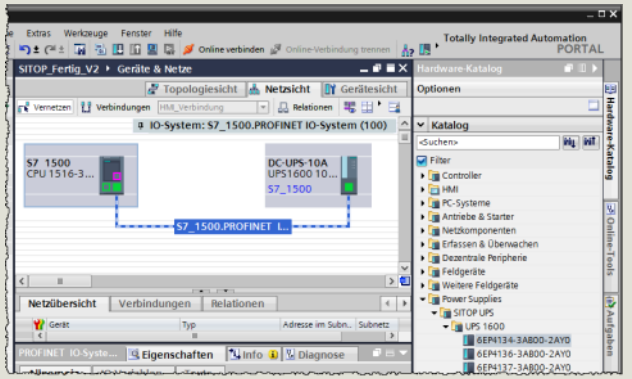
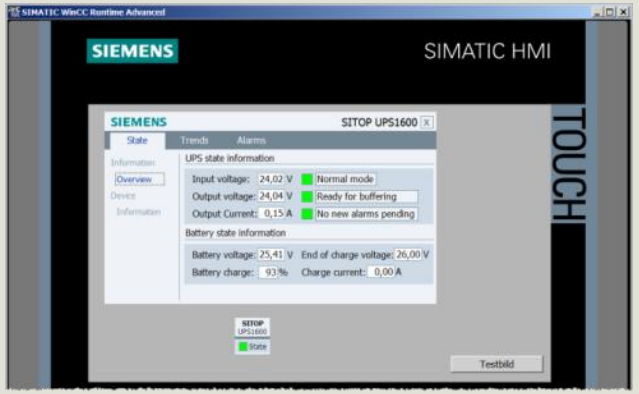
SITOP UPS1600
Engineering and monitoring with SITOP UPS Manager

SIEMENS
Ingenuity for life

SITOP UPS Manager		
Engineering	▪ Configuration of all relevant parameters, e.g. PC response to DC-UPS operating status ▪ Communication via USB or Ethernet ▪ Configuration of “not coded" batteries (without Energy Storage Link) ▪ Safe shutdown of various PCs according to the master-slave principle ▪ OPC UA Server: Flexible, producer-independent communication ▪ Remote monitoring via integrated Web server	
Diagnosis uninterruptable power supply and battery module	▪ Hardware configuration ▪ Normal operation and buffer mode ▪ Battery charging status, buffing readiness, reached buffer time ▪ Alarm messages, e.g. broken wire ▪ Current and voltage of UPS and battery ▪ Battery temperature ▪ Monitoring long-term developments via trend charts	
UPS Manager offers interfaces to PCs and external systems		

SITOP UPS1600
Engineering and monitoring with TIA Portal

SIEMENS
Ingenuity for life

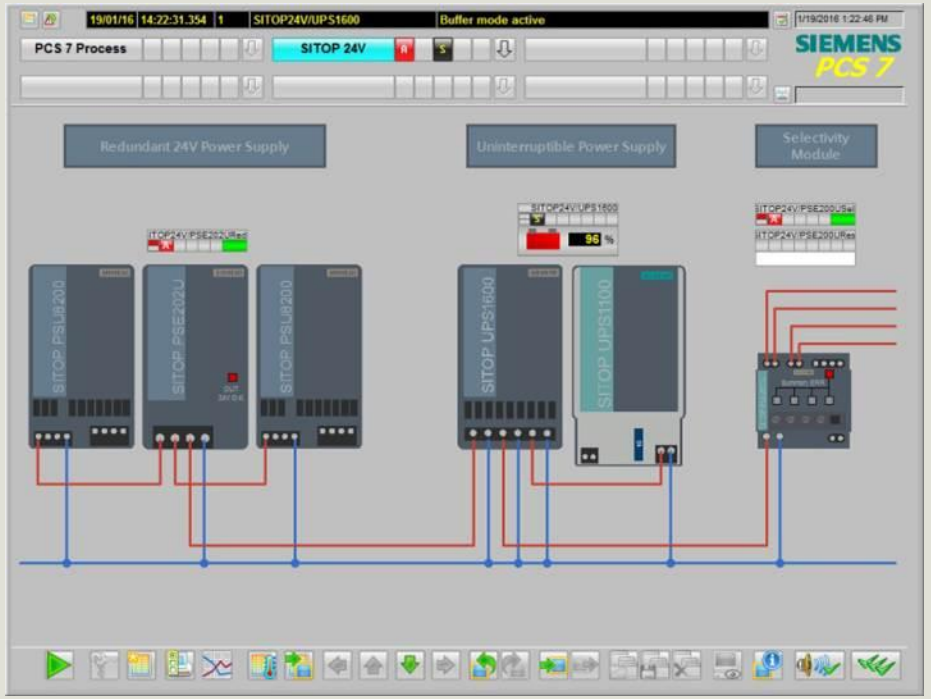
TIA Portal integration			
Engineering	▪ Comfortable Engineering of SITOP UPS1600 in the TIA Portal ▪ Fast product selection and network integration into PROFINET ▪ Easy integration into STEP 7 user programs with function blocks for SIMATIC S7 ▪ Fast integration into HMI with "UPS faceplates“ for SIMATIC WinCC	TIA Portal	
Diagnosis uninterruptable power supply and battery module	▪ Hardware configuration ▪ Normal operation and buffer mode ▪ Battery charging status, buffing readiness, reached buffer time ▪ Alarm messages, e.g. broken wire ▪ Current and voltage of UPS and battery ▪ Battery temperature ▪ Monitoring long-term developments via trend charts	WinCC Faceplate	

Comprehensive integration into TIA saves time and money in planning and operation

SITOP UPS1600
Engineering and monitoring with SIMATIC PCS 7

SIEMENS
Ingenuity for life

SIMATIC PCS 7 integration		

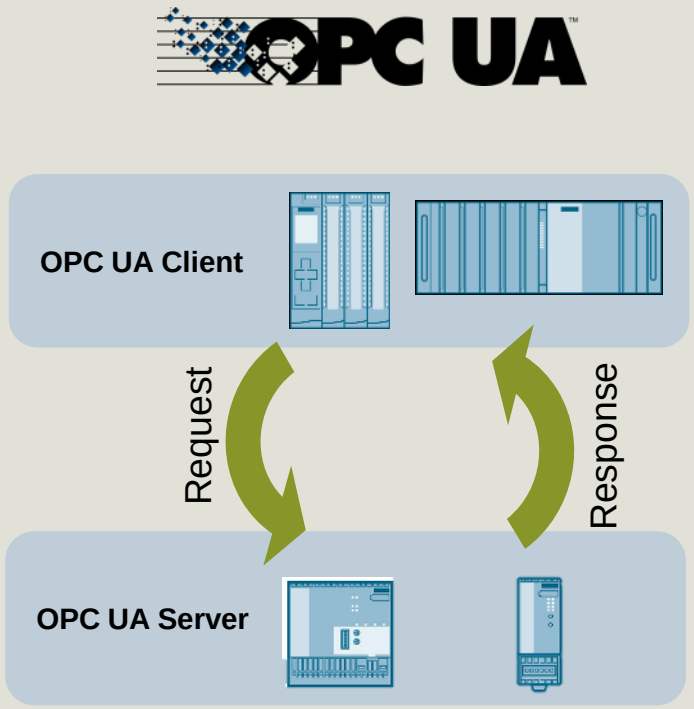
Engineering	▪ Comfortable integration of DC-UPS into SIMATIC PCS 7 via SITOP library with function blocks and faceplates
	▪ SW blocks in SIMATIC S7
	  ▪ Supply the faceplate for the user interface of the process control system with operating and diagnosis data
	  ▪ Generates messages
	  ▪ Enables Integration into the maintenance system of SIMATIC PCS 7
		

Diagnosis uninterruptable power supply and battery module	▪ Normal operation and buffer mode ▪ Battery charging status, buffing readiness, reached buffer time ▪ Alarm messages, e.g. broken wire ▪ Current and voltage of UPS and battery ▪ Battery temperature ▪ Monitoring long-term developments via trend charts	

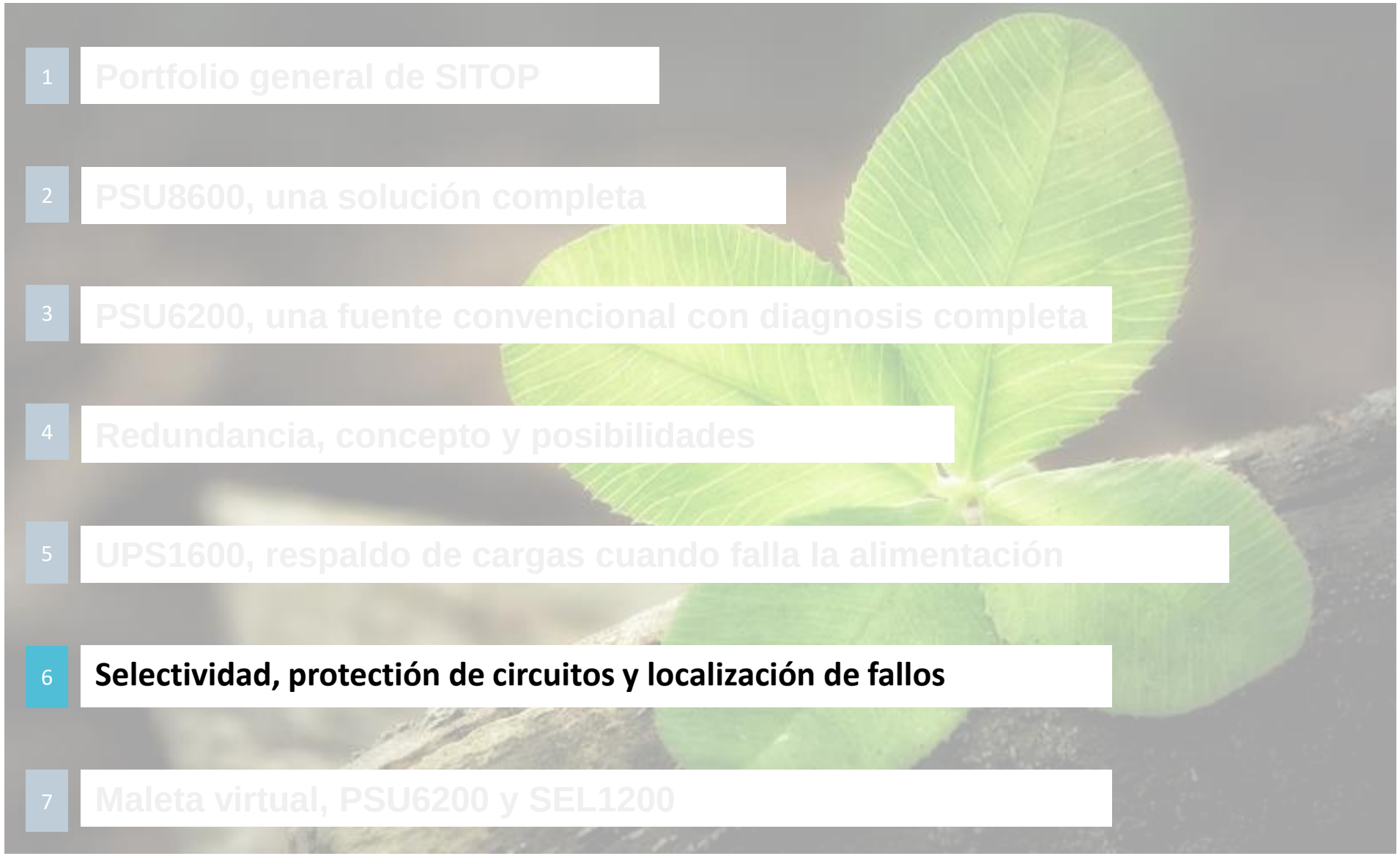
Comprehensive integration into SIMATIC PCS 7 saves time and money in planning and operation

SITOP UPS1600
Engineering und monitoring with OPC UA

SIEMENS
Ingenuity for life

Integrated OPC UA Server		
Engineering	▪ Communication over Ethernet and OPC UA or PROFINET simultaneously ▪ Platform independent integration in automation applications ▪ Access to all UPS software parameters and functions (i.e. Firmware update routine)	
Diagnosis uninterruptable power supply and battery module	▪ Full data model for device information ▪ Status information for UPS including batteries ▪ Pending alarms and alarm history ▪ Load current / input voltage levels ▪ Remaining buffer time ▪ Battery temperature / buffering availability / battery charging current	
Complete Library of Engineering and Diagnostic Tools available with OPC UA		

Agenda



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Top integration. Top efficiency. Top reliability.
SITOP power supplies

SIEMENS
Ingenuity for life

Advanced

SITOP PSU8600
The power supply system with TIA integration and open communication up to the Cloud

SITOP PSU8200
The technology power supply for demanding solutions

Standard

SITOP PSU6200
The all-around power supply for a wide range of applications

SITOP smart
The high-performance power supply

Basic

SITOP lite
The cost-effective basic power supply

LOGO!Power
The flat power supply for distribution boards

SITOP compact
The slim power supply unit for control boxes

SIMATIC design

SITOP in SIMATIC design
The optimal power supply for SIMATIC S7 and more

DC/DC converter

SITOP DC/DC converter
Stable supply despite fluctuating DC voltage

Special designs

Special designs
Equipped for special tasks and conditions

… individual extendable to all-round protection

SITOP Redundancy modules

SITOP Selectivity modules

SITOP Buffer module

SITOP DCUPS
with capacitors

with battery modules

Failure of a power supply	Overload in 24 V circuit	Power failure on the input side		
		Up to seconds	Up to minutes	Up to hours

Selectivity modules SITOP
Optimal and reliable protection for 24-V loads

SIEMENS
Ingenuity for life

No protection → Insufficient protection → Inadequate protection → High protection → Optimal protection

- An overload or short circuit in just one circuit can interrupt the power supply, resulting in a complete failure of the 24 V power supply throughout the system.

- Distribution of current via miniature circuit breakers in various load circuits
  → low-cost solution for consumers which are not sensitive to voltage dips
- In case of short circuit or overload standard switching devices do not supply the current required for immediate tripping
  → consumers such as PLC, PC or HMI devices are not reliably protected.

- Speed up tripping of the miniature circuit breakers by high overload capability of the power supply (power boost up to 3 x rated current, for example)
- In case of short circuit or overload with limited short-circuit current, caused by high line resistance for example, the tripping current cannot flow properly
  → inadequate protection of sensitive loads

- Switching electronic characteristics
- Current partitioning with selectivity module
- In case of short circuit or overload the affected circuit is protectively electronically tripped
  → reliable protection of all other consumers
- Optimal coordination of selectivity modules with standard power supplies
- Easy integration of selectivity modules in system diagnostics (common signaling contact, single-channel signaling, remote reset)

- Limiting electronic characteristics

Selectivity modules SITOP SEL1200/SEL1400 Highlights

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Ingenuity for life

Increase of availability in case of short circuit or overload
- Reliable tripping of defect load circuits
- Uninterruptible supply of all other load circuits

Tripping during operation only in case of failure
- Bridging of high start-up peaks

Fast fault diagnostics
- LED status display at the device
- Diagnostics interface
  - Common signaling contact or
  - Single-channel signaling

Easy commissioning
- Manual switch on/off using reset button
- 4 or 8 output per module
- Compact design
- Push-In terminal

Relief of power supply
- Avoidance of high inrush currents by sequential switching of output channels

Flexible use
- Individual adjustable response threshold for each output
- Parallel use of 2 outputs for performance increase up to 7.5 or 15 A

Solution for high and highest operation protection
- Selectivity module SEL1400 with limiting electronic characteristics
- Selectivity module SEL1200 with switching electronic characteristics

Complete 24 V DC monitoring and fast fault diagnostics

Selectivity modules SITOP SEL1200/SEL1400
Device features

SIEMENS
Ingenuity for life

Sealable transparent cover

8 Potentiometer for setting the tripping current

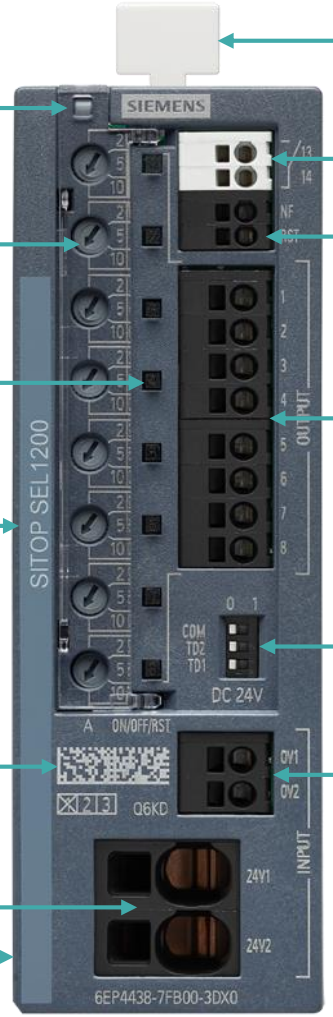
8 Pushbutton for On/Off/Reset for each output incl. 3-color status LED per output:
- green: connected
- orange: manually disconnected
- red: disconnected due to overload

Direct side-by-side mounting

Data Matrix Code

DC 24 V supply

Compact design in plastic enclosure



Device identification label

Diagnostics interface

Remote reset (signal 24 V DC)

8 outputs, Push-in terminals

Adjusting possibilities:
COM: Diagnostics interface:
0: Common signaling contact or
1: Single-channel signaling
TD1 / TD2: Activation time delay: load-optimized, +25, +100 ms or +500

0 V DC supply (only for the electronic of SEL1200/1400, not for the outputs)

Selectivity modules SITOP SEL1200/SEL1400
Comparison limiting/switching characteristics

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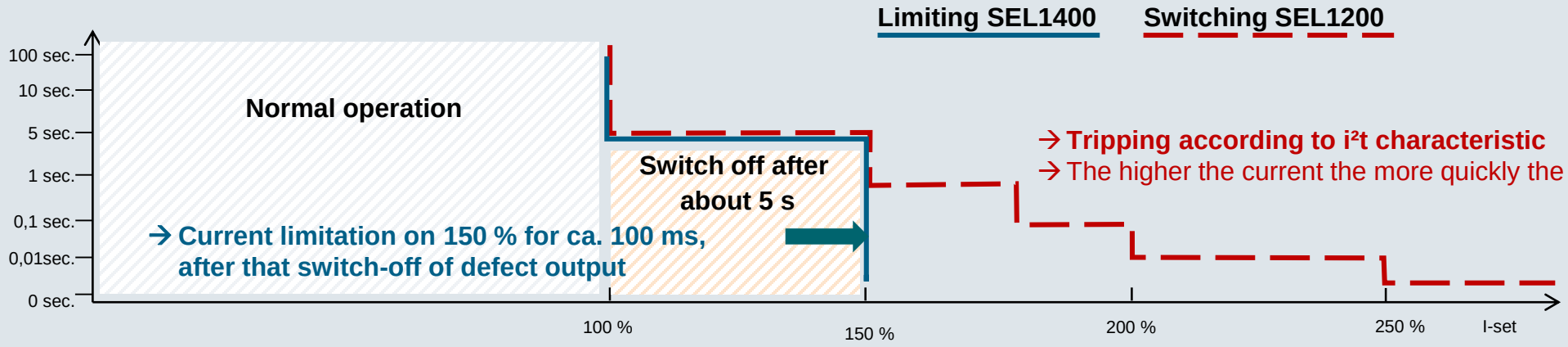
	SITOP SEL1400 – limiting electronic characteristics	SITOP SEL1200 – switching electronic characteristics
Shutdown behavior in case of short circuit or overload		
	Shutdown behavior at current demand per load circuit in proportion to adjustment value ($I/I_{\text{adjustment value}}$ = 100 %)  **Current demand … → shutdown…** • From 0 A to 100 % (adj. value) → no shutdown • From adjustment value to 150 % → after appr. 5 seconds • Above 150 %[1] of adjustment value → current limitation on ca. 150 %[1] for typ. 100 ms, afterwards shutdown • Above adjustment value with simultaneously output voltage under 20 V → ad hoc shutdown	Shutdown behavior at current demand per load circuit: Overcurrent dependent switch-off of the defect outputs acc. load limit integral i^2t

[1] Variants SITOP PSE200U with NEC Class 2: 110%

Ejemplo, SIMATIC HMI TP1200 Comfort 6AV2124-0MC01-0AX0

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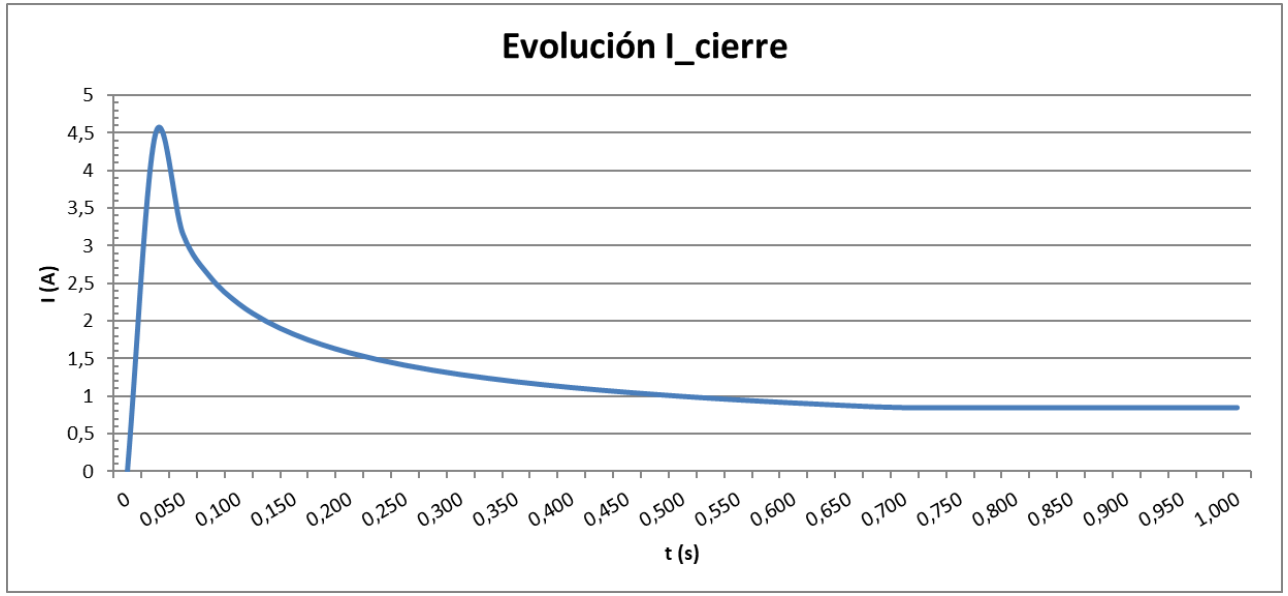
Tensión de alimentación	
Tipo de tensión de la alimentación	DC
Valor nominal (DC)	24 V
Rango admisible, límite inferior (DC)	19,2 V
Rango admisible, límite superior (DC)	28,8 V
Intensidad de entrada	
Consumo (valor nominal)	0,85 A
Intensidad transitoria de conexión I^2t	0,5 $A^2 \cdot s$
Potencia	
Consumo de potencia activa, típ.	20 W



I^2t	In	t(s)	Icierre
0,5	**0,85**	0	0
0,5	0,85	0,025	4,472135955
0,5	0,85	0,050	3,16227766
0,5	0,85	0,075	2,581988897
0,5	0,85	0,100	2,236067977
0,5	0,85	0,125	2
0,5	0,85	0,150	1,825741858
0,5	0,85	0,175	1,690308509
0,5	0,85	0,200	1,58113883
0,5	0,85	0,225	1,490711985
0,5	0,85	0,250	1,414213562
0,5	0,85	0,275	1,348399725
0,5	0,85	0,300	1,290994449
0,5	0,85	0,325	1,240347346
0,5	0,85	0,350	1,195228609
0,5	0,85	0,375	1,154700538
0,5	0,85	0,400	1,118033989
0,5	0,85	0,425	1,084652289
0,5	0,85	0,450	1,054092553
0,5	0,85	0,475	1,025978352
0,5	0,85	0,500	1
0,5	0,85	0,525	0,975900073
0,5	0,85	0,550	0,953462589
0,5	0,85	0,575	0,932504808
0,5	0,85	0,600	0,912870929
0,5	0,85	0,625	0,894427191
0,5	0,85	0,650	0,877058019
0,5	0,85	0,675	0,860662966
0,5	0,85	0,700	**0,85**
0,5	0,85	0,725	**0,85**

Selectivity modules SITOP SEL1200 / SEL1400
Function blocks for SIMATIC S7-1200, S7-1500, S7-300

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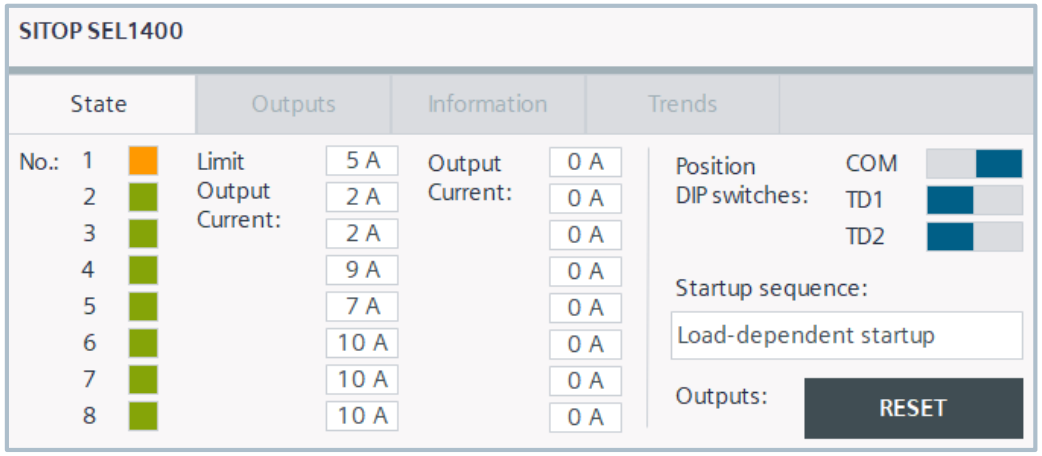
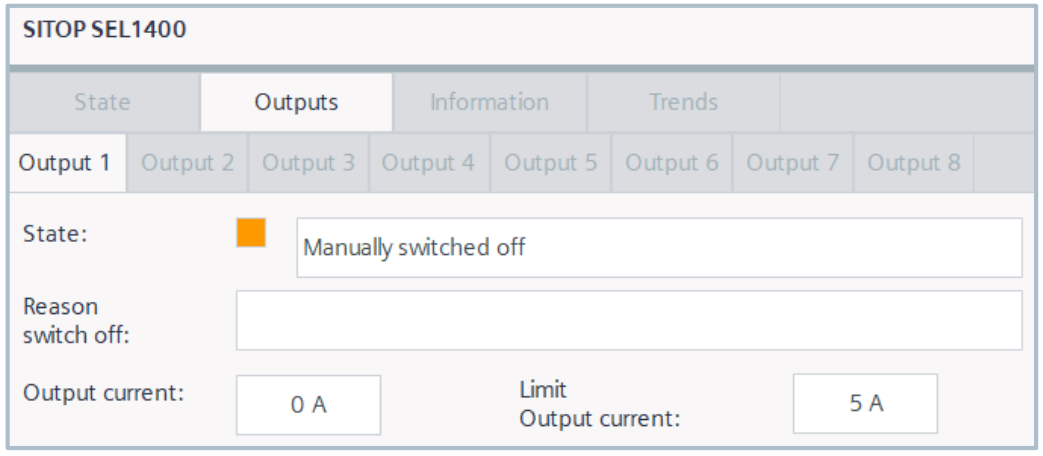
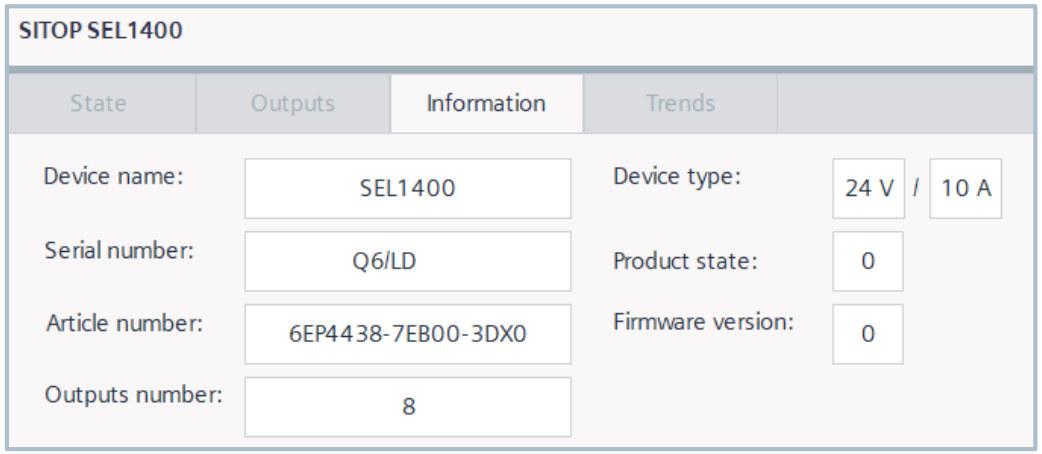
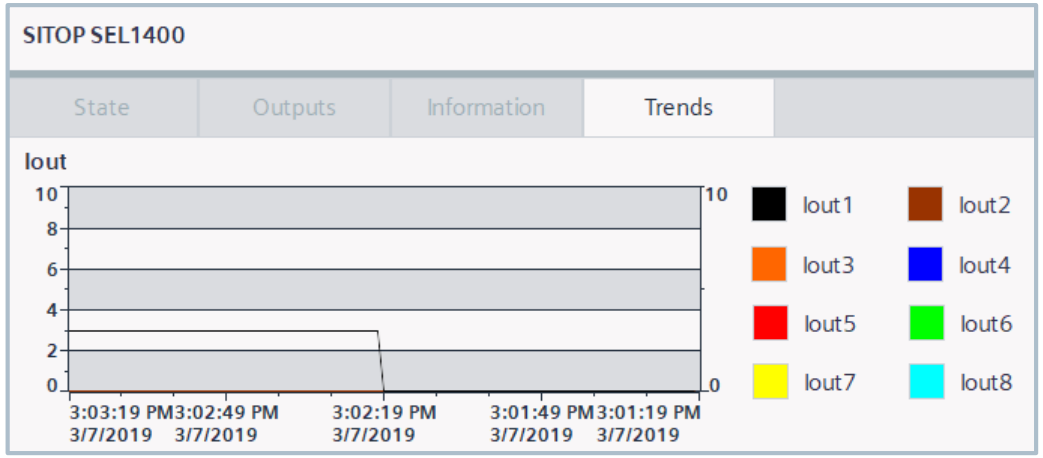




Faceplate for SEL1200 and SEL1400 available free of charge in SIOS





Selectivity modules SITOP SEL1200/1400
Technical data

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Technical data	**SITOP SEL1200 4 chan., 10 A**	**SITOP SEL1400 4 chan., 10 A**	**SITOP SEL1200 8 chan., 5 A**	**SITOP SEL1400 8 chan., 5 A**	**SITOP SEL1200 8 chan., 10 A**	**SITOP SEL1400 8 chan., 10 A**
Order no.	6EP4437-7FB00-3CX0	6EP4437-7EB00-3CX0	6EP4437-7FB00-3DX0	6EP4437-7EB00-3DX0	6EP4438-7FB00-3DX0	6EP4438-7EB00-3DX0
Rated input voltage – range	24 V DC 20.4…30 V DC	24 V DC 20.4…30 V DC	24 V DC 20.4…30 V DC	24 V DC 20.4…30 V DC	24 V DC 20.4…30 V DC	24 V DC 20.4…30 V DC
Input current	max. 63 A					
Rated output current – Setting range	4 x 10 A 2 … 10 A	4 x 10 A 2 … 10 A	8 x 5 A 1 … 5 A	8 x 5 A 1 … 5 A	8 x 10 A 2 … 10 A	8 x 10 A 2 … 10 A
Load circuits individually switched on	Yes	Yes	Yes	Yes	Yes	Yes
Safety fuse	15 A	15 A	6 A	6 A	15 A	15 A
Diagnostics interface	For all outputs one setting selectable: Common signal interface or channel specific interface for load circuit specific evaluation: Current, threshold,					
Status indication	3-coloured LED: Green: connected, Orange: manually disconnected , Red: disconnected due to overload / short circuit					
Remote/button reset per channel	Yes	Yes	Yes	Yes	Yes	Yes
Switch-off characteristics	Switching	Limited	Switching	Limited	Switching	Limited
Current measuring point for poti	No	No	No	No	No	No
Efficiency at rated values, approx.	98%	98%	98%	98%	98%	98%
Parallel switching	Yes, max. 15 A	Yes, max. 15 A	Yes, max. 15 A	Yes, max. 15 A	Yes, max. 15 A	Yes, max. 15 A
Connection technology	Push-in	Push-in	Push-in	Push-in	Push-in	Push-in
Electronic short-circuit protection	Ja	Ja	Ja	Ja	Ja	Ja
Radio interference suppression (EN 55022)	Class B	Class B	Class B	Class B	Class B	Class B
Degree of protection (EN 60529)	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Ambient temperature	-25…+70 °C	-25…+70 °C	-25…+70 °C	-25…+70 °C	-25…+70 °C	-25…+70 °C
Dimensions (W x H x D) in mm	45 x 135 x 125	45 x 135 x 125	45 x 135 x 125	45 x 135 x 125	45 x 135 x 125	45 x 135 x 125
Weight approx.	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg	0.3 kg
Certification	CE, UL, cULus, CB, cCSAus, CSA, ATEX, IECEx , in preparation: Class I Div 2, GL und ABS					

Selectivity modules SITOP PSE200U
Technical data

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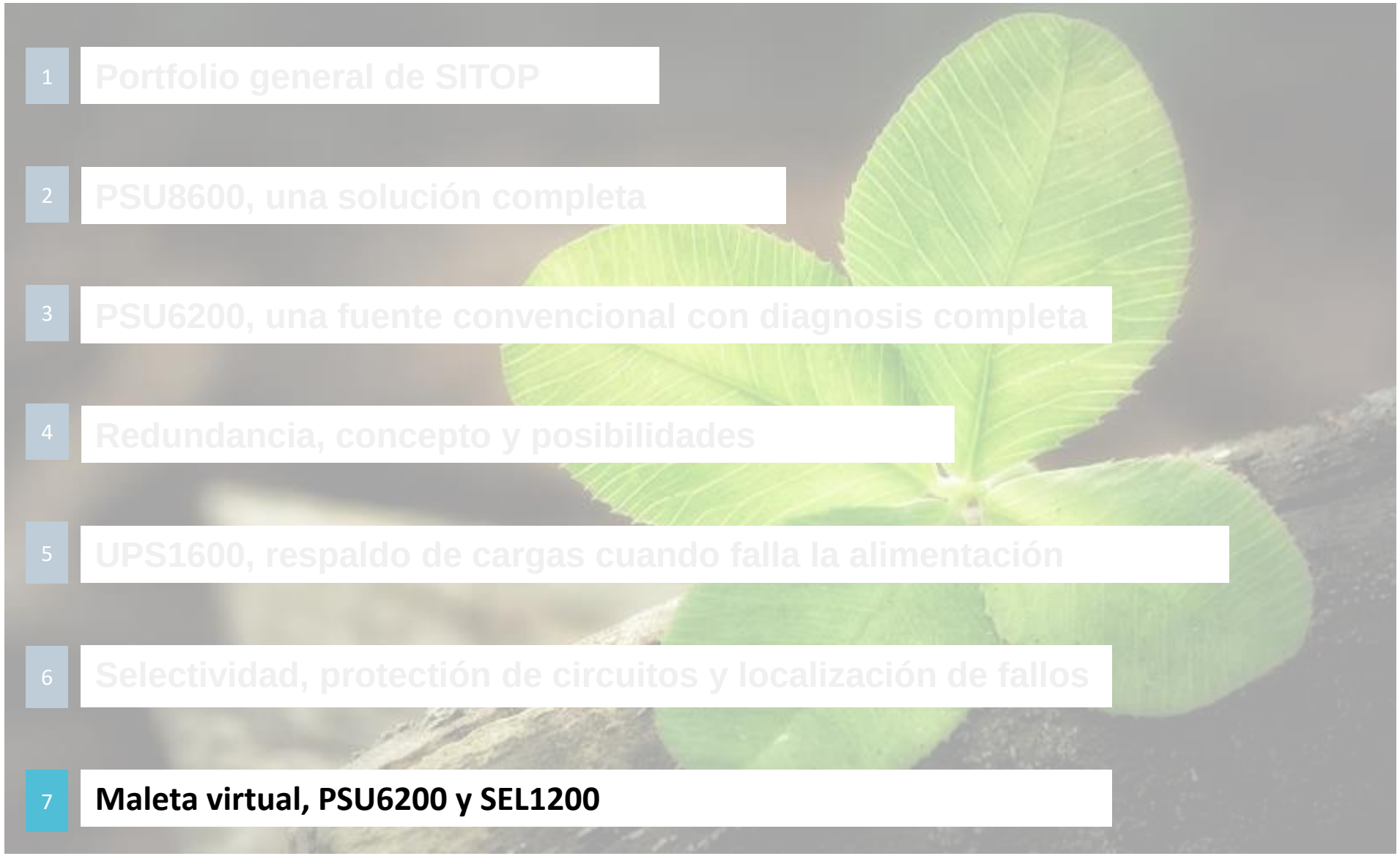
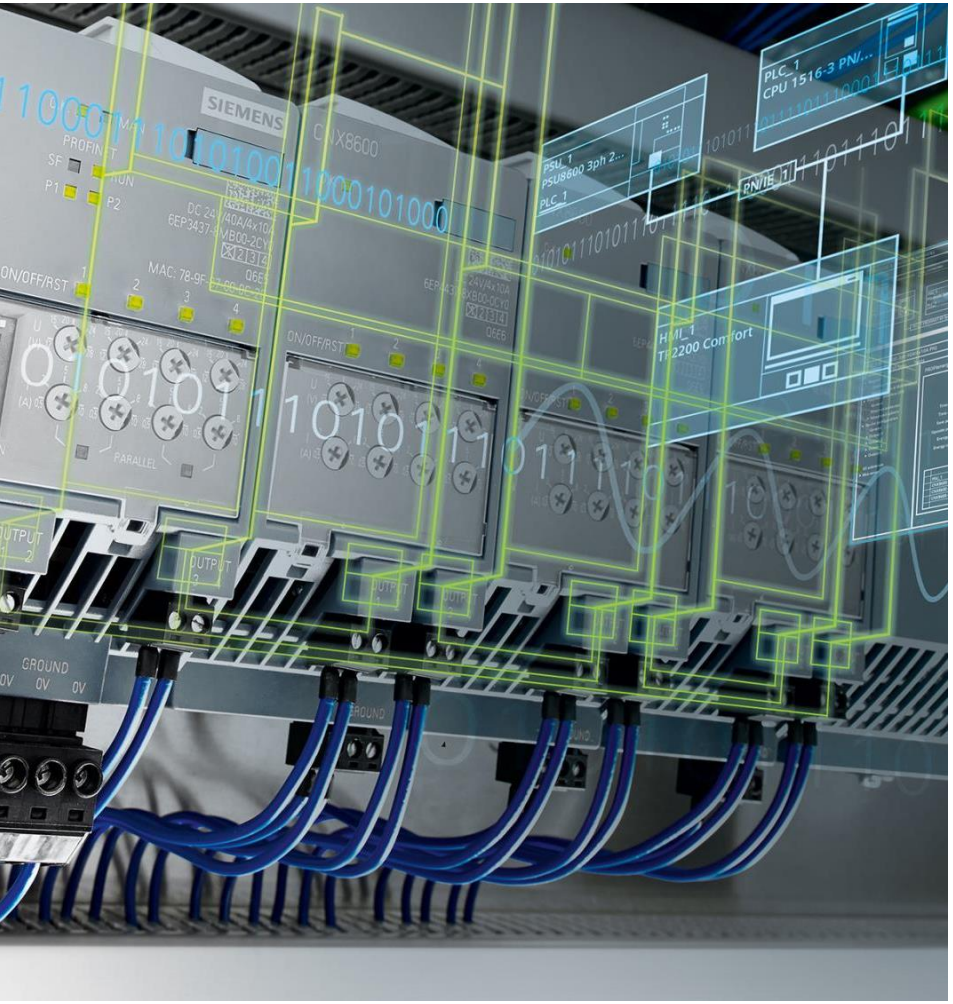
Technical data	**SITOP PSE200U with common signal interface**		**SITOP PSE200U with single channel signal**	
Article No.	6EP1961-2BA11	6EP1961-2BA21	6EP1961-2BA31	6EP1961-2BA41
Article No. with NEC Class 2	6EP1961-2BA51		6EP1961-2BA61	
Rated input voltage – Range	24 V DC 22…30 V DC			
Input voltage	max. 40 A			
Rated output current – Setting range	4 x 3 A 0,5…3 A	4 x 10 A 3…10 A	4 x 3 A 0,5…3 A	4 x 10 A 3…10 A
Individual load circuits to be switched on sequentially	Yes		Yes	
Diagnostics interface	Common signal interface		Signal interface for channel-specific evaluation (SIMATIC 7 function block)	
Status indication via 3-color LED per channel	3-coloured LED: Green: connected, Orange: manually disconnected , Red: disconnected due to overload / short circuit			
Remote reset with 24-V signal and reset via push button per channel;	Yes		Yes	
Switch-off characteristics	Limited electronic – for higher protection requirements			
Current measuring point for potentiometer	Yes	Yes	Yes	Yes
Efficiency at rated values, approx.	97%	99%	97%	99%
Parallel switching of 2 outputs	No			
Terminal technology	Screw terminal		Screw terminal	
Electronic short-circuit protection	Yes			
Radio interference suppression (EN 55022)	Class B			
Degree of protection (EN 60529)	IP20			
Ambient temperature	0 ... +60 °C (–25 … +85 °C transport/ storage)			
Dimensions (W x H x D) in mm	72 × 80 × 72	72 × 80 × 72	72 × 80 × 72	72 × 80 × 72
Weight approx.	ca. 170 g	ca. 220 g	ca. 170 g	ca. 220 g
Certification	UR (UL 2367), cURus (UL 508, CSA C22.2 No. 107.1) cCSAus (Class I Div 2), ATEX (EN 60079-0, -15), GL 1), ABS 1), 6EP1961-2BA51/6EP1961-2BA61: NEC Class 2			

Agenda



1. Portfolio general de SITOP
2. PSU8600, una solución completa
3. PSU6200, una fuente convencional con diagnosis completa
4. Redundancia, concepto y posibilidades
5. UPS1600, respaldo de cargas cuando falla la alimentación
6. Selectividad, protectión de circuitos y localización de fallos
7. **Maleta virtual, PSU6200 y SEL1200**

Contacto



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