6EP3233-0TA10-0AY0

## **Data sheet**



SITOP PSU3400/DC/DC/48V/24V/3.5A

SITOP PSU3400 24 V/3.5 A Stabilized power supply Input: 48 V DC (28...60 V) Output: 24 V DC/3.5 A NEC CLASS2

Input	
type of the power supply network	DC voltage
supply voltage at AC	
• initial value	Startup as of 36 V, derating necessary for 28 36 V DC
supply voltage	
• at DC	48 48 V
input voltage	
• at DC	28 60 V
design of input wide range input	No
overvoltage overload capability	-
operating condition of the mains buffering	at Vin = 48 V
buffering time for rated value of the output current in the event of power failure minimum	5 ms
operating condition of the mains buffering	at Vin = 48 V
input current	
at rated input voltage 48 V	1.9 A
current limitation of inrush current at 25 °C maximum	15 A
I2t value maximum	0.09 A²·s
fuse protection type	15 A (not accessible), breaking capacity 100 A
• in the feeder	Recommended miniature circuit breaker: 16 A characteristic B or C
Output	
voltage curve at output	Controlled, isolated DC voltage
output voltage at DC rated value	24 V
output voltage	
<ul> <li>at output 1 at DC rated value</li> </ul>	24 V
relative overall tolerance of the voltage	1 %
relative control precision of the output voltage	
<ul> <li>on slow fluctuation of input voltage</li> </ul>	0.1 %
<ul> <li>on slow fluctuation of ohm loading</li> </ul>	0.2 %
residual ripple	
• maximum	150 mV
• typical	30 mV
voltage peak	
• maximum	250 mV
• typical	70 mV
adjustable output voltage	24 28 V
product function output voltage adjustable	Yes
type of output voltage setting	via potentiometer
display version for normal operation	Green LED for 24 V OK
behavior of the output voltage when switching on	No overshoot of Vout (soft start)

voltage increase time of the output voltage  • typical • maximum  output current • rated value • rated range  supplied active power typical  product feature • bridging of equipment  number of parallel-switched equipment resources for increasing the power  efficiency  efficiency in percent  power loss [W] • at rated output voltage for rated value of the output current typical • during no-load operation maximum  relative control precision of the output voltage with rapid fluctuation of the input voltage by +/- 15% typical  relative control precision of the output voltage load step of resistive load 50/100/50 % typical  setting time • load step 50 to 100% typical • load step 100 to 50% typical  10 ms  3.5 A; +60 to +70 °C: without derating  7 We  without derating  7 We  2  **The control precision of the output voltage with rapid fluctuation of the input voltage with rapid fluctuation of the input voltage by +/- 15% typical  setting time • load step 50 to 100% typical • load step 100 to 50% typical  1 ms		
• hypical • maximum  output current • rated value • rated range supplied active power typical  product feature • bridging of equipment • bridging of equipment resources for increasing the power • bridging of equipment • bridging of equipment • bridging of equipment resources for increasing the power • bridging of equipment • bridging of equipment resources for increasing the power  ###################################	response delay maximum	0.5 s
output current		
output current	**	
* Intel value   3.5 A   3.5 K   460 to +70 °C; without derating    supplied active power typical   91 W    * bridging of equipment   2    * bridging of equipment   2    * bridging of equipment resources for increasing the power    **Efficiency in present   90 %    * bridging notes   90 %		20 ms
supplied active power typical supplied active power typical supplied active power typical subdiversity of equipment surface of a state of the control of the	output current	
supplied active power typical product feature * bridging of equipment * or bridging of equipment resources for increasing the power **  **Efficiency**  **Increasing**  **Efficiency**  **Efficiency**  **Increasing**  **Efficiency**  **Increasing**  **Efficiency**  **Effi	rated value	
product feature   bridging of equipment   Yes		
bidging of equipment number of parallel-switched equipment resources for seriosating the power  childrichicy  childrichicy  ethiclinery  a trated output voltage for rated value of the output current typical  a trated output voltage for rated value of the output current typical  a function load operation maximum  Closed-loop control  relative control precision of the output voltage with rapid floctuation of the input voltage by +1-15% typical  relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of relative control precision of the output voltage load step of resistive load 500% typical  1 ms  1 ms  2 %  2 %  2 %  2 %  2 %  2 %  2 %  2		91 W
rumber of parallel-switched equipment resources for increasing the power   Efficiency  efficiency in percent 90 %   • at rated output voltage for rated value of the output  current typical  • during no-load operation maximum 1.5 W   Closed-loop control  relative control precision of the output voltage with rapid  fluctuation of the input voltage with rapid  fluctuation of the input voltage by 47- 15% typical  relative control precision of the output voltage load step of  resistive load 50/100/60 % typical  • load step 100 to 50% typical 1 ms  Protection and monitoring  design of the overvoltage protection 1	•	
increasing the power  Efficiency  efficiency in percent power loss [W]		
efficiency in percent efficiency in percent power loss [VI]  a rated output voltage for rated value of the output current typical during no-load operation maximum  1.5 W	·	2
efficiency in percent power toss [W]		
Power loss [W]   * at rated output voltage for rated value of the output current typical   * during no-load operation maximum   * 1.5 W		00.0/
a trailed output voltage for rated value of the output current typical  buting no-load operation maximum  1.5 W  Clossed-loop control relative control precision of the output voltage with rapid fluctuation of the input voltage by 4r-15% typical relative control precision of the output voltage load step of resistive load 50/100/50 % typical relative control precision of the output voltage load step of resistive load 50/100/50 % typical 1 ms  boad step 100 to 50% typical 1 ms  cload step 100 to 50% typical 1 ms  response value current limitation typical 2 3.8 A reprotection amount of the property of the output short-circuit proof 4 response value current limitation typical 2 felexonic shutdown, automatic restart 4 yellow LED overload 3 slepton of short-circuit protection 2 felexonic shutdown, automatic restart 4 yellow LED overload 3 slepton between input and output 2 response value current limitation between input and output 3 response value voltage vo		90 %
current typical  of during no-load operation maximum  closed-loop control  relative control precision of the output voltage with rapid fluctuation of the input voltage by 7+. 15% typical  relative control precision of the output voltage load step of resistive load 501/00/50 % typical  relative control precision of the output voltage load step of resistive load 501/00/50 % typical  setting time  olad step 50 to 100% typical  load step 50 to 100% typical  olad step 100 to 50% typical  olad step 100 to 50% typical  load step 100 to 50% typical  olad step 100 to 50% typical  design of the overvoltage protection  design of the overvoltage protection  design of short-circuit protection  design of short-circuit protection  display version for overload and short circuit  Yellow LED overload  Safety  galvanic Isolation between input and output  yes galvanic Isolation between input and output  yes galvanic Isolation between input and output  yes galvanic Isolation  operating resource protection class  protection class IP  iP20  Approvals  certificate of suitability  ola proval  o		714
oluring no-load operation maximum  1.5 W  Closed-loop control relative control precision of the output voltage with rapid fluctuation of the input voltage by +/- 15% typical relative control precision of the output voltage load step of resistive load 50/100/50 % typical    load step 50 to 100% typical   1 ms     load step 50 to 100% typical   1 ms     load step 50 to 100% typical   1 ms     verification and monitoring   1 ms     design of the overvoltage protection   Ua < 35 V     response value current limitation typical   3.8 A     property of the output short-circuit proof   Yes     design of short-circuit protection   Electronic shutdown, automatic restart     display version for overload and short circuit   Yes     galvanic isolation between input and output   Yes     galvanic isolation between input and output   Yes     galvanic solation   Safety extra low output voltage Vout according to EN 60950-1     class III     protection class IP   IP20     Approvals   Ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259     ves; cultus-Listed (UL 508, CSA C22.2 No. 107.1), File E		/ W
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relative control precision of the output voltage with rapid fluctuation of the input voltage by +/- 15% typical relative control precision of the output voltage load step of resistive load 50/100/50 % typical relative control precision of the output voltage load step of resistive load 50/100/50 % typical resisting time   load step 50 to 100% typical   1 ms		1.0 11
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• load step 100 to 50% typical • load step 100 to 50% typical • load step 100 to 50% typical  Protection and monitoring  design of the overvoltage protection  Ua < 35 V  response value current limitation typical  glay property of the output short-circuit proof  design of short-circuit protection  display version for overload and short circuit  Vellow LED overload  Safety  galvanic isolation between input and output  galvanic isolation  Safety extra low output voltage Vout according to EN 60950-1  Operating resource protection class  protection class IP  P20  Approvals  certificate of suitability  • CE marking  • UL approval  • CSA approval  • CSA approval  • CSA approval  • CSAus, Class 1, Division 2  • ATEX  certificate of suitability  • IECEx  No  • No  • NEC Class 2  • ULhazloc approval  • FM registration  No  1 pre of certification CB-certificate  certificate of suitability  • EAC approval  • ABS, DNV GL  Marine classification association  • American Bureau of Shipping Europe Ltd. (ABS)  • French marine classification society (BV)  • DNV GL	resistive load 50/100/50 % typical	
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design of short-circuit protection display version for overload and short circuit  Yellow LED overload  Safety  galvanic isolation between input and output yes galvanic isolation operating resource protection class Class III protection class IP Approvals  certificate of suitability  CE marking UL approval  CSA approval  CSA, approval  CCSAus, Class 1, Division 2 ATEX No  certificate of suitability  IECEX No NEC Class 2 ULhazloc approval  ULhazloc approval  FM registration No  type of certificate of suitability  EAC approval  Regulatory Compliance Mark (RCM)  FM egulation association  American Bureau of Shipping Europe Ltd. (ABS) FFrench marine classification society (BV)  DNV GL  Electronic shutdown, automatic restart Yellow LED overload  Yellow LED overload  Yes Safety extra low output voltage Vout according to EN 60950-1  Class III  IP20  Approvals  Yes  Class III  IP20  Yes  Yes  CULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259  Yes; CULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259  Yes; CULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259  No No  Yes  Certificate of suitability  EAC approval  Regulatory Compliance Mark (RCM)  Yes  Certificate of suitability shipbuilding approval  ABS, DNV GL  Marine classification association  American Bureau of Shipping Europe Ltd. (ABS)  French marine classification society (BV)  DNV GL	response value current limitation typical	3.8 A
display version for overload and short circuit  Safety  galvanic isolation between input and output  galvanic isolation  operating resource protection class  Class III  IP20  Approvals  certificate of suitability  • CE marking  • UL approval  • CSA approval  • CSA, approval  • CSA, approval  • CESA approval  • IECEx  • No  • NEC Class 2  • ULhazloc approval  • FM registration  type of certificate of suitability  • EAC approval  • Regulatory Compliance Mark (RCM)  • American Bureau of Shipping Europe Ltd. (ABS)  • French marine classification society (BV)  • DNV GL	property of the output short-circuit proof	Yes
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galvanic isolation  operating resource protection class  protection class IP  Approvals  certificate of suitability  • CE marking  • UL approval  • CSA approval  • CSA, cCSA,	Safety	
operating resource protection class IP  P20  Approvals  certificate of suitability	galvanic isolation between input and output	Yes
protection class IP  Approvals  certificate of suitability	galvanic isolation	
Certificate of suitability  CE marking  UL approval  CSA approval  CCSA approval  CCSAus, Class 1, Division 2  ATEX  No  Certificate of suitability  ECEx  ECEx  ECEX  ECEC Class 2  ECEC Class 2  ECEC Certification CB-certificate  Certificate of suitability  EAC approval  EAC approv	operating resource protection class	Class III
certificate of suitability	<u> </u>	IP20
CE marking UL approval UL approval Yes; cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259 Yes; cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259 Yes; cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259 CCSAus, Class 1, Division 2 ATEX No  Certificate of suitability IECEX No NEC Class 2 No ULhazloc approval FM registration No  type of certification CB-certificate Yes Certificate of suitability EAC approval Regulatory Compliance Mark (RCM) Yes  Certificate of suitability shipbuilding approval ABS, DNV GL  Marine classification association American Bureau of Shipping Europe Ltd. (ABS) French marine classification society (BV) DNV GL  Yes	Approvals	
<ul> <li>UL approval</li> <li>CSA approval</li> <li>CSA approval</li> <li>CCSAus, Class 1, Division 2</li> <li>ATEX</li> <li>No</li> <li>Certificate of suitability</li> <li>IECEX</li> <li>NO</li> <li>PM registration</li> <li>NO</li> <li>Tyes of certificate of suitability</li> <li>EAC approval</li> <li>EAC approval</li> <li>EAC approval</li> <li>Regulatory Compliance Mark (RCM)</li> <li>Yes</li> <li>Certificate of suitability shipbuilding approval</li> <li>ABS, DNV GL</li> <li>Marine classification association</li> <li>American Bureau of Shipping Europe Ltd. (ABS)</li> <li>French marine classification society (BV)</li> <li>DNV GL</li> </ul>	certificate of suitability	
<ul> <li>CSA approval</li> <li>CCSAus, Class 1, Division 2</li> <li>ATEX</li> <li>No</li> <li>Certificate of suitability</li> <li>IECEx</li> <li>No</li> <li>NEC Class 2</li> <li>ULhazloc approval</li> <li>FM registration</li> <li>Vyes</li> <li>certificate of suitability</li> <li>EAC approval</li> <li>Regulatory Compliance Mark (RCM)</li> <li>Certificate of suitability shipbuilding approval</li> <li>ABS, DNV GL</li> <li>Marine classification society (BV)</li> <li>DNV GL</li> <li>PYes</li> <li>CULhazloc C2.2 No. 107.1), File E197259</li> <li>No</li> <li>No</li> <li>No</li> <li>Ves</li> <li>SNO</li> <li>ABS, DNV GL</li> <li>No</li> <li>Yes</li> <li>SNO</li> <li>Yes</li> <li>SNO</li> <li>Yes</li> <li>SNO</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>No</li> <li>Yes</li> <li>Ye</li></ul>	CE marking	Yes
cCSAus, Class 1, Division 2     ATEX     No  certificate of suitability     IECEx     No     NEC Class 2     No     ULhazloc approval     FM registration     Ves  certificate of suitability     EAC approval     Regulatory Compliance Mark (RCM)     Regulatory Compliance Mark (RCM)  certificate of suitability shipbuilding approval  shipbuilding approval  ABS, DNV GL  Marine classification association     American Bureau of Shipping Europe Ltd. (ABS)     French marine classification society (BV)     DNV GL	<ul> <li>UL approval</li> </ul>	Yes; cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259
ATEX  Certificate of suitability  IECEX  No  NEC Class 2  ULhazloc approval  FM registration  No  type of certificate of suitability  EAC approval  Regulatory Compliance Mark (RCM)  Sertificate of suitability shipbuilding approval  ABS, DNV GL  Marine classification association  American Bureau of Shipping Europe Ltd. (ABS) French marine classification society (BV)  DNV GL	<ul> <li>CSA approval</li> </ul>	Yes; cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259
certificate of suitability  IECEX  No  NEC Class 2  ULhazloc approval FM registration  No  type of certification CB-certificate  Certificate of suitability  EAC approval Regulatory Compliance Mark (RCM)  Certificate of suitability shipbuilding approval  Shipbuilding approval  Marine classification association  American Bureau of Shipping Europe Ltd. (ABS) French marine classification society (BV)  DNV GL	<ul><li>cCSAus, Class 1, Division 2</li></ul>	No
IECEx     NEC Class 2     NEC Class 2     ULhazloc approval     FM registration     No      type of certification CB-certificate     Yes      certificate of suitability     EAC approval     Regulatory Compliance Mark (RCM)     certificate of suitability shipbuilding approval     shipbuilding approval  Marine classification association     American Bureau of Shipping Europe Ltd. (ABS)     French marine classification society (BV)     DNV GL  No  No  No  No  No  No  No  No  No  N	• ATEX	No
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<ul> <li>ULhazloc approval</li> <li>FM registration</li> <li>No</li> <li>type of certification CB-certificate</li> <li>certificate of suitability</li> <li>EAC approval</li> <li>Regulatory Compliance Mark (RCM)</li> <li>certificate of suitability shipbuilding approval</li> <li>shipbuilding approval</li> <li>Marine classification association</li> <li>American Bureau of Shipping Europe Ltd. (ABS)</li> <li>French marine classification society (BV)</li> <li>DNV GL</li> </ul>	• IECEx	No
FM registration  type of certification CB-certificate  Certificate of suitability  EAC approval  Regulatory Compliance Mark (RCM)  Certificate of suitability shipbuilding approval  Shipbuilding approval  Marine classification association  American Bureau of Shipping Europe Ltd. (ABS)  French marine classification society (BV)  DNV GL  No  Yes  No  Yes  No  Yes	NEC Class 2	No
type of certification CB-certificate  certificate of suitability  EAC approval  Regulatory Compliance Mark (RCM)  certificate of suitability shipbuilding approval  Shipbuilding approval  ABS, DNV GL  Marine classification association  American Bureau of Shipping Europe Ltd. (ABS)  French marine classification society (BV)  DNV GL  Yes	ULhazloc approval	No
certificate of suitability  • EAC approval  • Regulatory Compliance Mark (RCM)  certificate of suitability shipbuilding approval  shipbuilding approval  ABS, DNV GL  Marine classification association  • American Bureau of Shipping Europe Ltd. (ABS)  • French marine classification society (BV)  • DNV GL  Yes		No
EAC approval     Regulatory Compliance Mark (RCM)      certificate of suitability shipbuilding approval      shipbuilding approval      Marine classification association		Yes
<ul> <li>Regulatory Compliance Mark (RCM)</li> <li>Certificate of suitability shipbuilding approval</li> <li>Shipbuilding approval</li> <li>Marine classification association</li> <li>American Bureau of Shipping Europe Ltd. (ABS)</li> <li>French marine classification society (BV)</li> <li>DNV GL</li> </ul>	-	
certificate of suitability shipbuilding approval  shipbuilding approval  ABS, DNV GL  Marine classification association  • American Bureau of Shipping Europe Ltd. (ABS)  • French marine classification society (BV)  • DNV GL  Yes		
shipbuilding approval  Marine classification association  • American Bureau of Shipping Europe Ltd. (ABS)  • French marine classification society (BV)  • DNV GL  ABS, DNV GL  Yes		
Marine classification association  • American Bureau of Shipping Europe Ltd. (ABS)  • French marine classification society (BV)  • DNV GL  Yes		
<ul> <li>American Bureau of Shipping Europe Ltd. (ABS)</li> <li>French marine classification society (BV)</li> <li>DNV GL</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> </ul>		ABS, DNV GL
<ul> <li>French marine classification society (BV)</li> <li>DNV GL</li> <li>Yes</li> </ul>	Marine classification association	
DNV GL     Yes	<ul> <li>American Bureau of Shipping Europe Ltd. (ABS)</li> </ul>	Yes
	<ul> <li>French marine classification society (BV)</li> </ul>	No
Lloyds Register of Shipping (LRS)     No	DNV GL	Yes
	<ul> <li>Lloyds Register of Shipping (LRS)</li> </ul>	No

<ul> <li>Nippon Kaiji Kyokai (NK)</li> </ul>	No
EMC	
standard	
<ul> <li>for emitted interference</li> </ul>	EN 61000-6-3
<ul> <li>for mains harmonics limitation</li> </ul>	not applicable
<ul> <li>for interference immunity</li> </ul>	EN 61000-6-2
environmental conditions	
ambient temperature	
<ul> <li>during operation</li> </ul>	-25 +70 °C; with natural convection
<ul> <li>during transport</li> </ul>	-40 +85 °C
<ul> <li>during storage</li> </ul>	-40 +85 °C
environmental category according to IEC 60721	Climate class 3K3, 5 95% no condensation
Mechanics	
type of electrical connection	screw-type terminals
• at input	L, N, FE: 1 screw terminal each for 0.5 2.5 mm² single-core/finely stranded
<ul><li>at output</li></ul>	+, -: 2 screw terminals each for 0.5 2.5 mm <sup>2</sup>
width of the enclosure	32 mm
height of the enclosure	100 mm
depth of the enclosure	100 mm
required spacing	
• top	50 mm
• bottom	50 mm
• left	0 mm
• right	0 mm
net weight	0.32 kg
product feature of the enclosure housing can be lined up	Yes
fastening method	Snaps onto DIN rail EN 60715 35x7.5/15
electrical accessories	Buffer module
MTBF at 40 °C	1 934 648 h
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)

