

■ Main Features

- Low cost DC-UPS with charging function of a 24Vdc battery
- Suitable for power supplies with adjustable output
- Easy connection by unique IN / OUT connector
- Instantaneous LOAD switch to BACKUP mode
- Maximum battery capacity 40Ah
- Load current: 40A Max.
- Battery protection against reverse polarity connection and overcurrent
- Battery deep discharge protection
- To be used with lead acid and lithium batteries (types compatible with lead acid batteries)

TECHNICAL DATA

Model type	NUPS960-24	
INPUT DATA		
Input DC voltage ²	24...30Vdc	
Input DC current	40A + max. 2.5A with empty battery	
Standby power	< 4.5W	
BATTERY DATA		
Rated battery voltage	24Vdc	
Battery chemistries	<ul style="list-style-type: none"> ▪ Lead Acid ▪ Lithium (types compatible with lead acid batteries) 	
Maximum battery charge current ³	2A	
Maximum battery discharge current	40A	
Allowed battery capacity	Up to 40Ah	
Deep discharge cut-off voltage	19Vdc ± 0.5V	
Battery protections	<ul style="list-style-type: none"> ▪ Overcurrent ▪ Deep discharge ▪ Reverse polarity 	
Battery fuse	2x 25A / 32V - ATO blade type	
USER INTERFACE		
"DC OK" LED	▪ Green LED ON - DC voltage is > 22.0Vdc ± 0.5V	
"BATTERY FAIL" LED	▪ Red LED ON - Battery voltage < 19Vdc ± 0.5V	
"BATTERY DISCHARGE" LED ⁴	▪ Yellow LED ON - Battery in discharge condition	
3 dry contact relays (NO, 24Vdc / 1A)	<ul style="list-style-type: none"> ▪ DC OK - Close if DC voltage is > 22.0Vdc ± 0.5V ▪ BATTERY FAIL - Close if Battery voltage < 19Vdc ± 0.5V ▪ BATTERY DISCHARGE - Close if Battery in discharge condition 	
GENERAL DATA		
Efficiency at full load	> 98%	
Power loss (during backup)	< 13W	
Operating temperature ¹	- 40...+ 70°C	
Derating	- 0.5A/°C over 60°C	
Storage temperature	- 40...+ 80°C	
Humidity	5...95% r.H. non condensing	
Life time expectation	180'000h (20.5 years) at 25°C ambient full load	
MTBF	<ul style="list-style-type: none"> ▪ MIL-HDBK-217F > 180'000h at 25°C ambient full load 	
Overvoltage category	▪ EN50178 1	
Pollution degree	▪ IEC60664-1 2	
Isolation against enclosure	0.75kVdc	
Safety Standards	<ul style="list-style-type: none"> ▪ UL508 (reference) ▪ EN60950 (reference) 	
EMC Emission	<ul style="list-style-type: none"> ▪ EN55011 (CISPR11) Class B ▪ EN55022 (CISPR22) Class B 	
EMC Immunity	<ul style="list-style-type: none"> ▪ EN61000-4-2 Level 3 ▪ EN61000-4-3 Level 3 ▪ EN61000-4-4 Level 4 ▪ EN61000-4-5 Level 1 	
Protection degree	▪ EN60529 IP20	
Vibration sinusoidal	▪ IEC 60068-2-6 (5-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2hours / axis (X,Y,Z))	
Shock	▪ IEC 60068-2-27 (30g 6ms, 20g 11ms; 3 bumps / direction, 18 bumps total)	
IN/Battery/OUT connection terminals	Up to 16mm ² , screw type pluggable (20...6AWG)	
Status signals connection terminals	Up to 0.5mm ² , fast pluggable type (20AWG)	
Case material	Aluminum	
Weight	0.45kg	
Size (W x H x D)	40.0 x 115.0 x 110.0mm	

1) Start-up type tested: - 40°C, possible at nominal voltage with load deration.

2) NUPS960-24 can be started up only by feeding DC +/- with a 24Vdc source (e.g. the power supply).

3) Battery charger is operational when DC voltage > Battery voltage.

4) Battery discharge information will only function if the battery is connected.

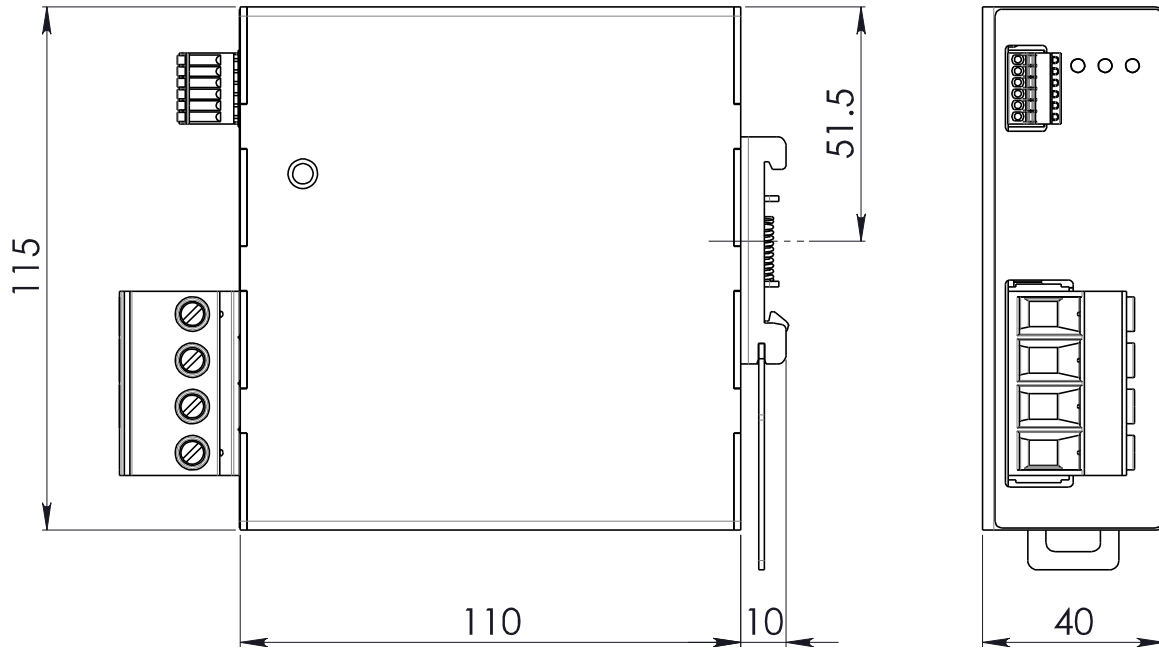
Notes:

- Technical parameters are typical, measured in laboratory environment at 25°C at nominal values, after minimum 5 minutes of operation.

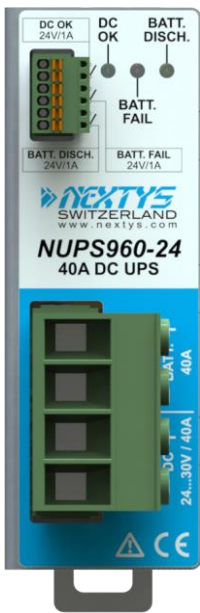
- Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.

- Data may change without prior notice in order to improve the product.

DIMENSIONS



CONNECTION



IN/Battery/OUT Connections:

- BATTERY += Positive DC (Battery)
- BATTERY -= Negative DC (Battery)
- DC += Positive DC (Power Supply) / Positive DC (Load)
- DC -= Negative DC (Power Supply) / Negative DC (Load)

Signalling Connections:

- DC OK:** dry contact
- NO
 - COM
- BATTERY FAIL:** dry contact
- NO
 - COM
- BATTERY DISCHARGE:** dry contact
- NO
 - COM