













■ Main Features

- J High efficiency and compact size
- J Plastic enclosure, circuit breaker shape
- J Simplified wiring (no PE connection)
- J Overload 170%
- **J** High operating temperature with no derating

NPSM20 Series – Rev.V11 Page 1/3



ΤΕCΗΝΙζΑΙ ΠΑΤΑ

TECHNICAL DATA			
Model type	NPSM2	20-12	NPSM20-24
OUTPUT DATA			
Rated voltage	12V	/dc	24Vdc
Adj. output voltage range	12Vdc		24Vdc Fixed
Continuous current	1.65		0.85A
Overload limit	1.00	571	0.03/1
Vin = 120Vac	2.60	0.4	1.30A
Vin = 240Vac	3.25		1.70A
Short circuit peak current	8.0		4.0A
Load regulation	≤1%		
Ripple & Noise ¹	≤ 100mVpp		
Hold up time	≥5ms		
	Overload/short circuit: Hiccup mode Thermal protection Output overvoltage		
Protections			
Totections			
Status Signals	DC OK - green LED		
Parallel connection		Possible for redundancy ((with external ORing module)
INPUT DATA			
		Nominal: 120, 2	MOVac (III, certified)
Input AC rated voltage	Nominal: 120240Va.cettified) Range: 90240Vac		
Frequency			
	4763Hz		
Input DC rated voltage	110345Vdc		
Input AC rated current			
Vin = 120Vac	0.40A		
Vin = 240Vac	0.40A 0.30A		
Input DC rated current			
1 .			2204
Vin = 110Vdc	0.300		
Vin = 345Vdc	< 0.10A		
Inrush peak current	≤ 50A		
Touch (leakage) current	≤0.2mA		
	_		
Internal protection fuse			user replaceable)
Recommended external protection	MCB 6A C curve		
Necommended external protection	It is strongly room	1 14 21 4 1	
	it is strongly reco	ommended to provide external	surge arresters (SPD) according to local regulations.
GENERAL DATA	it is strongly reco	ommended to provide external	surge arresters (SPD) according to local regulations.
·	it is strongly reco	·	surge arresters (SPD) according to local regulations.
GENERAL DATA Efficiency	it is strongly reco	>	
GENERAL DATA	it is strongly reco	>	80% < 6W
GENERAL DATA Efficiency	it is strongly reco	> - 40°	80% < 6W C+ 70°C
GENERAL DATA Efficiency Dissipated power Operating temperature ²	it is strongly reco	> - 40° UL certifi	80% < 6W C+ 70°C ed up to 50°C
GENERAL DATA Efficiency Dissipated power	it is strongly reco	> - 40° UL certifi	80% < 6W C+ 70°C
GENERAL DATA Efficiency Dissipated power Operating temperature ²	it is strongly rect	- 40° UL certifi - 0.5W/	80% < 6W C+ 70°C ed up to 50°C
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature	it is strongly rect	- 40° UL certifi - 0.5W/ - 40°	80% 6 6W C+ 70°C ed up to 50°C °C over 50°C + 80°C
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity	it is strongly reco	- 40° UL certifi - 0.5W/ - 40°(595% r.H.	80% 6W C+ 70°C ed up to 50°C °C over 50°C + 80°C non condensing
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation		- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a	80% 6W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity	■ MIL-HDBK-217F	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a	80% 6W C+ 70°C ed up to 50°C °C over 50°C + 80°C non condensing
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation		- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a	80% 6W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF	MIL-HDBK-217F	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2	80% 6W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree	 MIL-HDBK-217F EN50178 IEC60664-1 	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2	80% 6W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class	 MIL-HDBK-217F EN50178 IEC60664-1 	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2	80% 60W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree	 MIL-HDBK-217F EN50178 IEC60664-1 	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II	80% 6W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class	 MIL-HDBK-217F EN50178 IEC60664-1 	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2	80% 60W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class	MIL-HDBK-217F EN50178 IEC60664-1 CLASS	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II	80% 60W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation	MIL-HDBK-217F EN50178 IEC60664-1 CLASS	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 III 4. (certified E356563)	80% 60W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards	 MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 	- 40° UL certifi - 0.5W/ - 40° (595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II 4. (certified E356563) (reference) (reference)	80% 60W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation	- MIL-HDBK-217F - EN50178 - IEC60664-1 - CLASS - UL508 - EN60950 - EN50178 - EN55011 (CISPR11)	- 40° UL certification - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) - 500'000h at 2 11 2 11 4. (certified E356563) (reference) (reference) Class A	80% 60W C+70°C ed up to 50°C °C over 50°C C+80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN55011 (CISPR11) EN55022 (CISPR22)	- 40° UL certifi - 0.5W/ - 40° (595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II 4. (certified E356563) (reference) (reference) Class A Class A	80% 60W C+70°C ed up to 50°C °C over 50°C C+80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN501778 EN55011 (CISPR11) EN55022 (CISPR22) EN61000-4-2	- 40° UL certification UL	80% 60W C+70°C ed up to 50°C °C over 50°C C+80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN55012 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Level 3 Level 3	80% 60W C+70°C ed up to 50°C °C over 50°C C+80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN55021 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4	- 40° UL certifi	80% 60W C+70°C ed up to 50°C °C over 50°C C+80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission	 MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN55012 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Level 3 Level 3	80% 60W C+70°C ed up to 50°C °C over 50°C C+80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN55021 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4	- 40° UL certifi	80% 60W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission EMC Immunity	 MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN55012 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Level 3 Level 3 Level 3 Level 3 Level 3	80% 60W C+ 70°C ed up to 50°C °C over 50°C C+ 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission EMC Immunity Protection degree	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN5020 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-11 EN60529	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Level 3 Level 3 Level 3 Level 3 Level 3 Level 3 Level 2 IP20	80% 6 6W C+ 70°C ed up to 50°C °C over 50°C + 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission EMC Immunity Protection degree Vibration sinuosoidal	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN5021 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-11 EN60529 IEC 60068-2-6	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Level 3 Level 2 IP20 (5-17.8Hz: ±1.6mm; 17.8-50)	80% 6 6W C+ 70°C ed up to 50°C °C over 50°C + 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission EMC Immunity Protection degree	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN5020 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-11 EN60529	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Level 3 Level 2 IP20 (5-17.8Hz: ±1.6mm; 17.8-50)	80% 6 6W C+ 70°C ed up to 50°C °C over 50°C + 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission EMC Immunity Protection degree Vibration sinuosoidal	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN5021 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-11 EN60529 IEC 60068-2-6	- 40° UL certified - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at 2 III 2 III 4. (certified E356563) (reference) (reference) (reference) Class A Class A Level 3 Level 2 IP20 (5-17.8Hz: ±1.6mm; 17.8-50 (30g 6ms, 20g 11ms; 3 bum	80% 6 6W C+ 70°C ed up to 50°C °C over 50°C + 80°C non condensing at 25°C ambient full load 25°C ambient full load
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission EMC Immunity Protection degree Vibration sinuosoidal Shock Connection terminals	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN5021 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-11 EN60529 IEC 60068-2-6	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at a III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Level 3 Level 4 Level 4 Level 4 Level 5 Level 5 Level 5 Level 6 Level 6 Level	280% 66W C+ 70°C ed up to 50°C Cover 50°C Cover 50°C non condensing at 25°C ambient full load 25°C ambient full load 22kVdc DOHz: 2g 2hours / axis (X,Y,Z) ps / direction, 18 bumps total) e header (2412AWG)
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission EMC Immunity Protection degree Vibration sinuosoidal Shock Connection terminals Case material	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN5021 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-11 EN60529 IEC 60068-2-6	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at a III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Class A Level 3 Level	280% 66W C+ 70°C ed up to 50°C Cover 50°C Cover 50°C non condensing at 25°C ambient full load 25°C ambient full load 25°C ambient full load 2kVdc DOHz: 2g 2hours / axis (X,Y,Z) ps / direction, 18 bumps total) e header (2412AWG) retardant UL94 V-0
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission EMC Immunity Protection degree Vibration sinuosoidal Shock Connection terminals	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN5021 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-11 EN60529 IEC 60068-2-6	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at a III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Class A Level 3 Level	280% 66W C+ 70°C ed up to 50°C Cover 50°C Cover 50°C non condensing at 25°C ambient full load 25°C ambient full load 22kVdc DOHz: 2g 2hours / axis (X,Y,Z) ps / direction, 18 bumps total) e header (2412AWG)
GENERAL DATA Efficiency Dissipated power Operating temperature ² Derating Storage temperature Humidity Life time expectation MTBF Overvoltage category Pollution degree Protection Class Input / output isolation Safety Standards EMC Emission EMC Immunity Protection degree Vibration sinuosoidal Shock Connection terminals Case material	MIL-HDBK-217F EN50178 IEC60664-1 CLASS UL508 EN60950 EN50178 EN50178 EN5021 (CISPR11) EN55022 (CISPR22) EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-11 EN60529 IEC 60068-2-6	- 40° UL certifi - 0.5W/ - 40°(595% r.H. 58'629h (6.6 years) a > 500'000h at a III 2 II 4. (certified E356563) (reference) (reference) (reference) Class A Class A Level 3 Level 5 Level 5 Level 5 Level 7 Level 7 Level 7 Level 8 Level 9 Level	80% 6 6W C+ 70°C ed up to 50°C °C over 50°C + 80°C non condensing at 25°C ambient full load 25°C ambient full load 25°C ambient full load 2kVdc DOHz: 2g 2hours / axis (X,Y,Z) ps / direction, 18 bumps total) e header (2412AWG) retardant UL94 V-0

- 1) Ripple and Noise are measured with 20MHz bandwidth, probe terminated with a $0.1\mu F$ MKP parallel capacitor. 2) Start-up type tested: $-40^{\circ}C$, possible at nominal voltage with load deration.

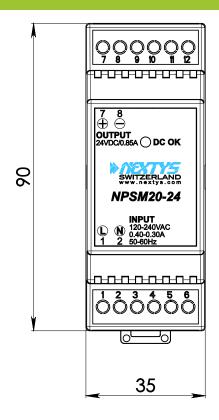
- Technical parameters are typical, measured in laboratory environment at 25°C and 240Vac / 50Hz, at nominal values, after minimum 5 minutes of operation.
- Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.

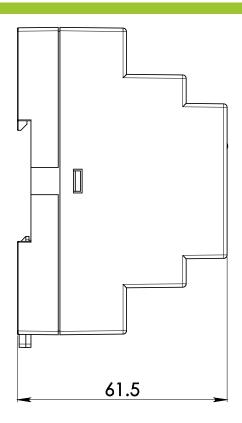
 Data may change without prior notice in order to improve the product.

NPSM20 Series – Rev.V11 Page 2/3



DIMENSIONS





CONNECTION





Input Connection:

Single phase:

- L = Line (1)
- N = Neutral (2)

DC.

- L = + Positive DC (1)
- N = Negative DC (2)

Output Connection:

- + = Positive DC (7)
- - = Negative DC (8)

NPSM20 Series – Rev.V11 Page 3/3