■ *Main Features*

- High efficiency and compact size
- Provides 3kVAC isolation for DC/DC applications
- Provides more than 800W output power
- Wide voltage range 10…55Vdc
- Output tracks the input voltage as in a standard AC transformer
- Easy parallelable for power increase with natural current sharing (external ORing module needed)
- Hiccup mode current limitati on with auto restart
- Up to 70°C operating temperature (with power derating)

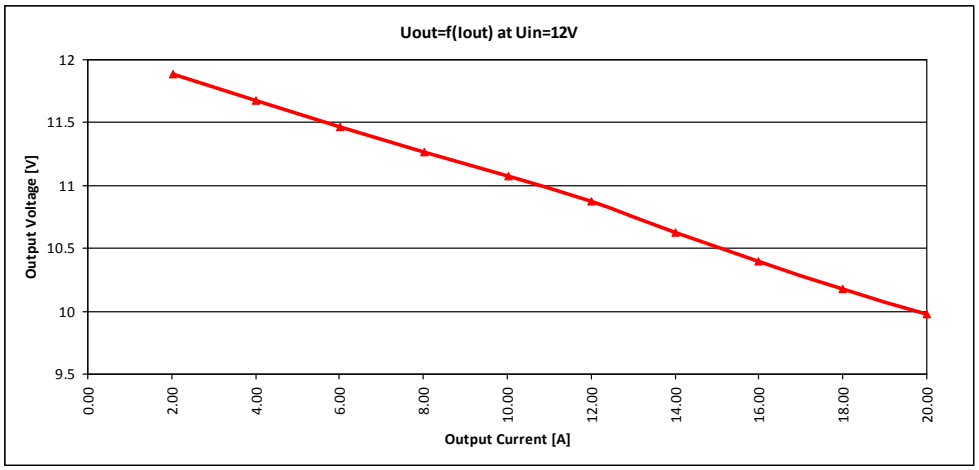
TECHNICAL DATA

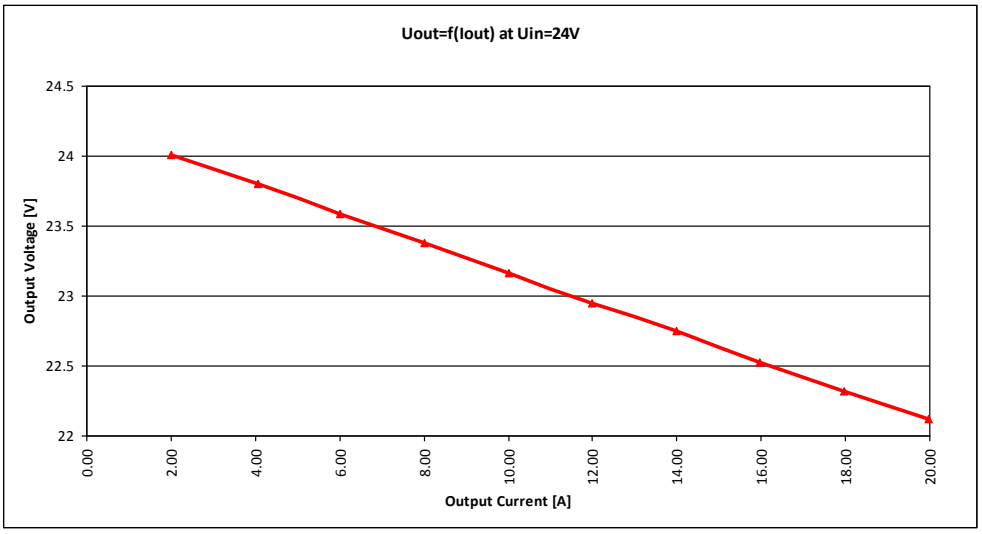
Model type	NISO-20	
OUTPUT DATA		
Rated voltage	10…55Vdc	
Continuous current	20A @ 12…24Vdc 17A @ 48Vdc	
Overload limit	21A	
Short circuit peak current	60A	
Load regulation	Not regulated see charts on Fig.1	
Ripple & Noise[1]	≤ 80mVpp	
Output equivalent resistance	125mΩ	
Protections	▪ Overload, short circuit: Hiccup mode ▪ Thermal protection ▪ Input undervoltage lockout ▪ Input overvoltage protection ▪ Input transient overvoltage protection	
Output overvoltage protection	≥ 62Vdc	
Status Signals	▪ **INPUT OK** - green LED ▪ **OUTPUT OK** - green LED ▪ **OVERLOAD** - red LED ▪ **LOAD** - bargraph indicating the load current by 4 amber LEDs ▪ **DC OK** - dry contact (NO, 24Vdc / 1A)	
Parallel connection	Possible for power or redundancy (with external ORing module)	
INPUT DATA		
Input DC rated voltage	Nominal: 12…48Vdc Range: 10…55Vdc	
Input DC rated current	20A	
Standby power	< 6W	
Internal protection fuse	Fuse 30A ATO blade (not user replaceable)	
Recommended external protection (use DC rated devices)	30A Fuse or MCB 25A C curve	
GENERAL DATA		
Efficiency	> 85% … > 96% Depending on Vout and Vin see chart on Fig.2	
Dissipated power	< 35W	
Operating temperature[2]	- 40°C…+ 70°C	
Derating	See charts on Fig.3	
Storage temperature	- 40°C…+ 80°C	
Humidity	5…95% r.H. non condensing	
Life time expectation	123'361h (14.1 years) at 25°C ambient full load	
MTBF	▪ MIL-HDBK-217F	> 600'000h at 25°C ambient full load
Overvoltage category Pollution degree	▪ EN50178 ▪ IEC60664-1	I 2
Protection Class	▪ Class	II
Input / output isolation	4.2kVdc	
Input / ground isolation	2.2kVdc	
Output / ground isolation	0.75kVdc	
Safety Standards	▪ UL508 ▪ EN60950	(reference) (reference)
EMC Emission	▪ EN55011 (CISPR11) ▪ EN55022 (CISPR22)	Class A Class A
EMC Immunity	▪ EN61000-4-2 ▪ EN61000-4-3 ▪ EN61000-4-4 ▪ EN61000-4-5	Level 3 Level 3 Level 3 Level 3
Protection degree	▪ EN60529	IP20
Vibration sinuosoidal	▪ 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)
Connection terminals	2.5mm², screw type pluggable (24...12AWG)	
Case material	Aluminum	
Weight	0.50kg	
Size (W x H x D)	54.0 x 115.0 x 110.0mm	

1) Ripple and Noise are measured with 20MHz bandwidth, probe terminated with a 0.1µF MKP parallel capacitor.
2) Start-up type tested: - 40°C, possible at nominal voltage with load deration.

Notes:
- Technical parameters are typical, measured in laboratory environment at 25°C and 24Vdc, 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.

Fig.1


Uout=f(Iout) at Uin=12V
Output Voltage [V]
12
11.5
11
10.5
10
9.5
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
Output Current [A]


Uout=f(Iout) at Uin=24V
Output Voltage [V]
24.5
24
23.5
23
22.5
22
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
Output Current [A]

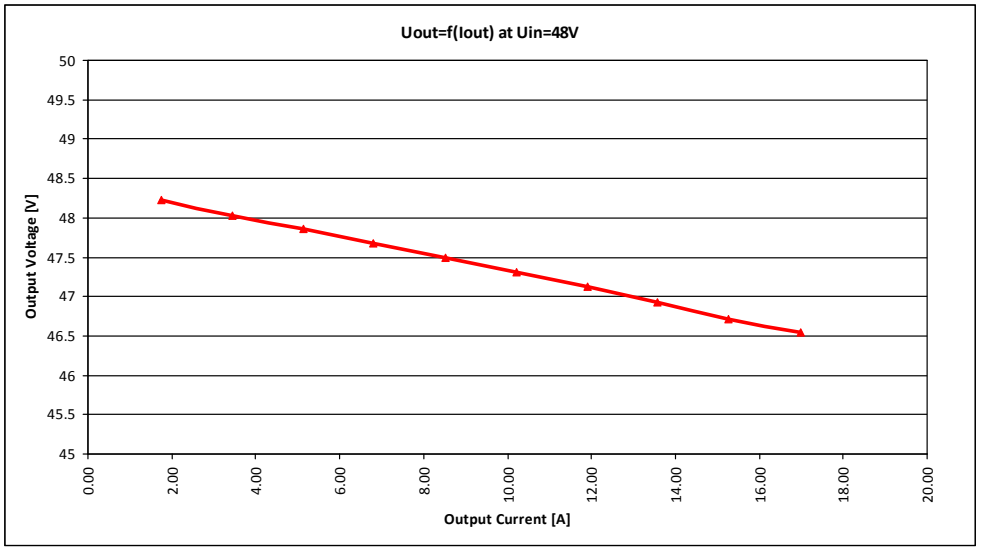

Uout=f(Iout) at Uin=48V
Output Voltage [V]
50
49.5
49
48.5
48
47.5
47
46.5
46
45.5
45
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
Output Current [A]

Fig.2

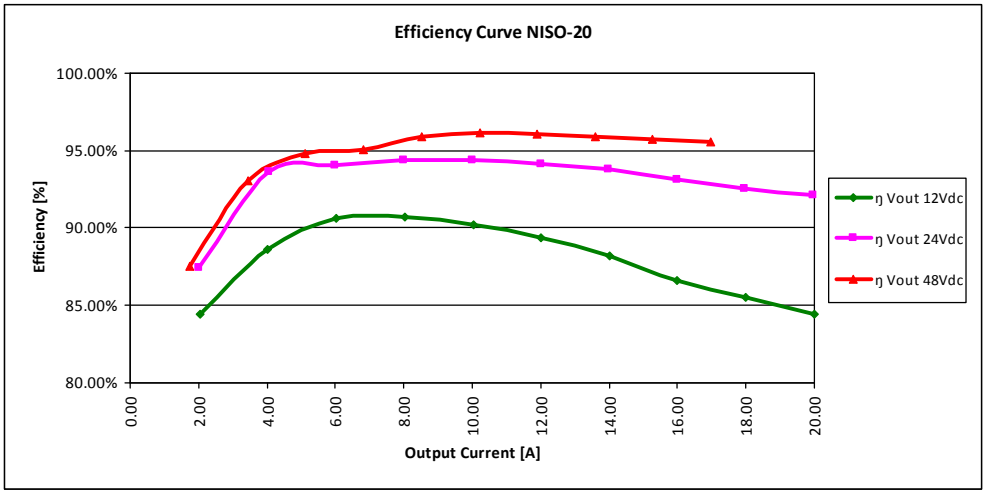
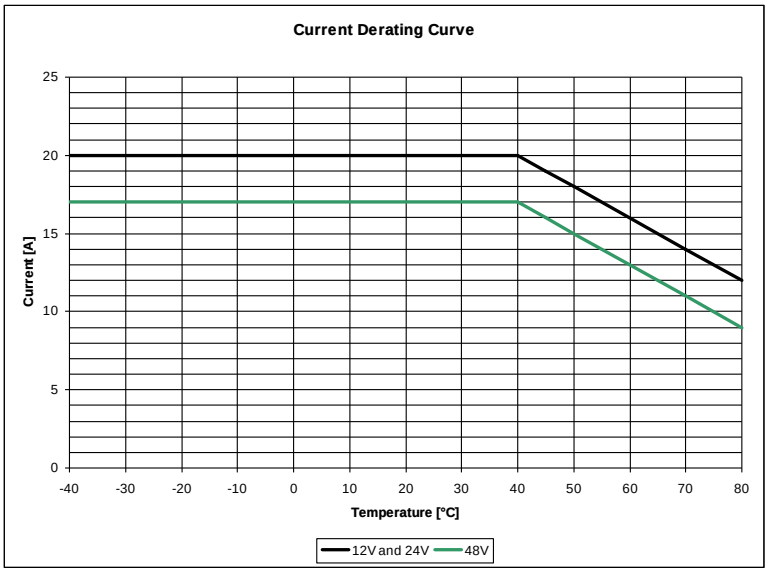
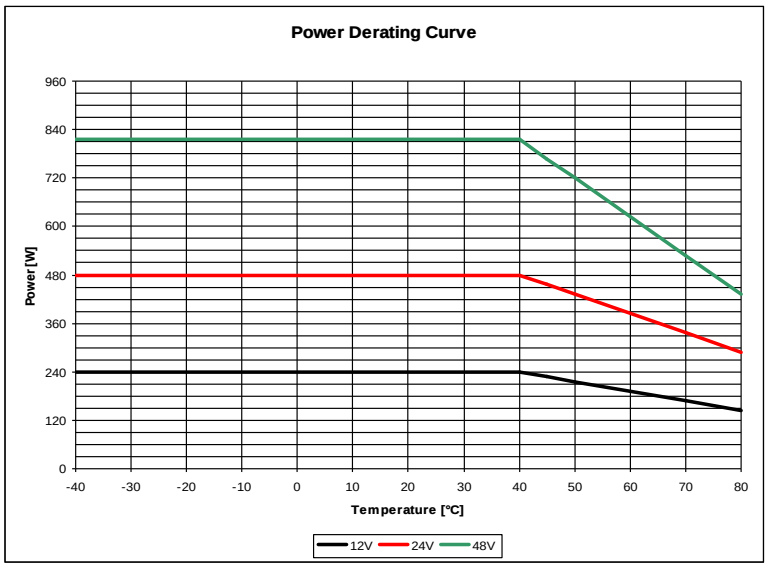
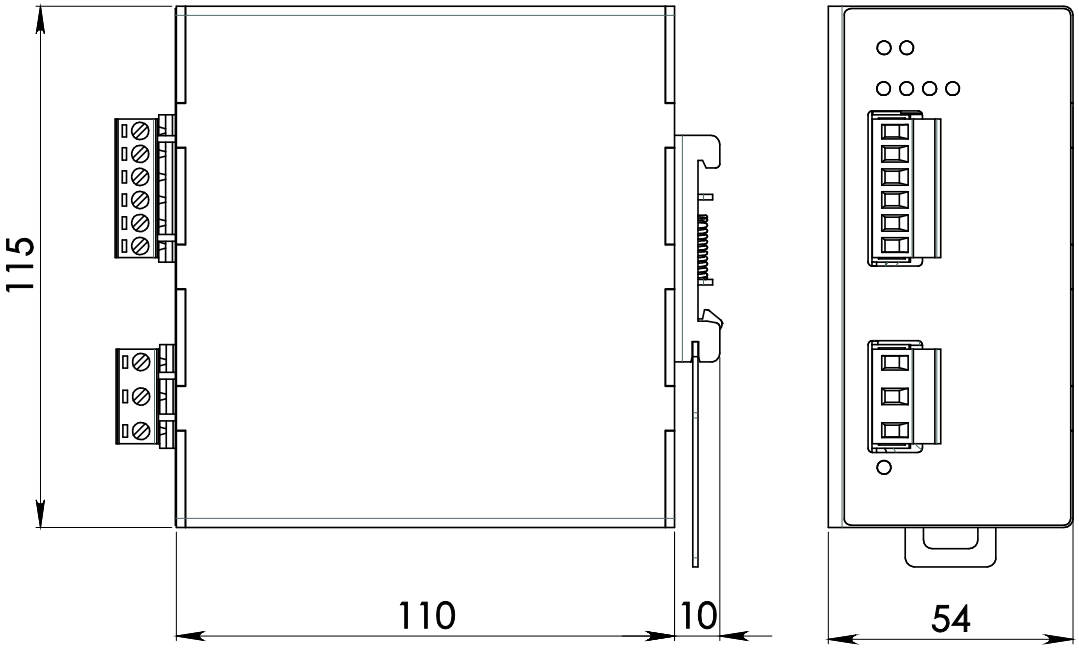

Efficiency Curve NISO-20
100.00%
95.00%
90.00%
85.00%
80.00%
Efficiency [%]
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
Output Current [A]
η Vout 12Vdc
η Vout 24Vdc
η Vout 48Vdc

Fig.3


Current Derating Curve
25
20
15
10
5
0
Current [A]
-40
-30
-20
-10
0
10
20
30
40
50
60
70
80
Temperature [°C]
12V and 24V
48V


Power Derating Curve
960
840
720
600
480
360
240
120
0
Power [W]
-40
-30
-20
-10
0
10
20
30
40
50
60
70
80
Temperature [°C]
12V
24V
48V

DIMENSIONS



CONNECTION

Input Connection:

DC:
- + = Positive DC
- - = Negative DC
- ⏚ = Earth ground

Output Connection:

- + = Positive DC
- - = Negative DC

Signalling:
DC OK: dry contact
- NO
- COM