NOX PSU5-G3 • N136-G3

NOX PSU5-G3

NOX power supply incl. battery backup with a maximum of 5A output current in a large housing. Space for two 18 Ah batteries (not included).

The unit consits of:
- AC/DC 150W power supply with 32/33 VDC output voltage.
- NOX PS5 Rev.B electronics with NOX Bus-connection.
- NOX TEP for measurement of battery temperature
- NOX ALA back tamper sensor
- NOX BOX Rev.B G3, steel cabinet (604x404x105 mm)
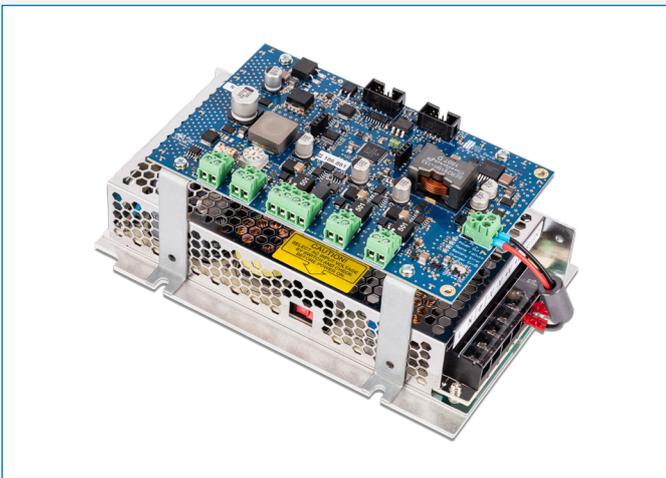
Technical Data • AC/DC switch-mode power supply 32/33V / 150W				
Description	Unit	Min.	Nominal	Max.
AC supply voltage (110V)	VAC	100	110	120
AC supply voltage (230V)	VAC	200	230	240
AC supply frequency	Hz	47	50	63
Output power	W			150
Output voltage	VDC	31,0	32/33	33,5
Ambient temperature (e.g. in NOX housing)	°C	0		50
PFC complies to EN 61000-3-2 and -3-3		Yes		
Protection		Overload and over temperature protection		

ARAS
SECURITY

NOX PSU5-G3 • N136-G3

Technical Data • NOX PS5 RevB - Components				
Description	Unit	Min.	Nominal	Max.
Dimensions (L x W x H)	mm	220 x 125 x 95		
Weight	kg	1,0		
Operating temperature (e.g. in NOX housing)	°C	0		40
Allowed range of measured continuous temperature = Temperature on PCBA	°C	0		80
Humidity @ +40°C (non condensing)	% RH			93
Power consumption during normal operation (33 VDC) without load	mA		25	
Power consumption during battery operation (26 VDC) without load	mA		27	
Input voltage on PS5 PCBA (P1)	VDC	30,0	33,0	34,0
Output voltage on PS5 PCBA (O1, O2, O3)	VDC	14,0	15,0	15,7
Output voltage Ripple	mV			750
Total output current (O1 + O2 + O3) @ 2A battery charging current, Imax a	A			5
Total output current (O1 + O2 + O3) @ 4A battery charging current	A			2
Output current O1, O2, O3 each up to (according to EN 50131-6)	A			3
Output current O1, O2, O3 each up to	A			5
Output fuse per Output (set by software) according to EN 50131-6	mA	200	1000	3000
Output fuse per Output (set by software)	mA	200	1000	5000
Surge protection at output O1, O2, O3	V		16,7	18,5
Battery voltage at the end of charging @ 20 °C (can be selected in 0.2V steps)	V	26,2		28,0
Tolerance for battery voltage at the end of charging	V			±0.2
Temperature compensation for battery voltage at the end of charging	°C	0	25	50
Battery charging current	A		2	4
Battery resistance, incl. associated circuit, Ri	Ω			2
Back tamper sensor: measuring distance	mm	5	40	50
General output error (P8 - System Status Out) optocoupler	mA			100
General output error (P8), length of connecting cable	m			10

NOX PSU5-G3 • N136-G3

Techical Data • Batteries

Description	Unit	Min.	Nominel	Max.
Type		VRLA (Valve Regulated Lead Acid)		
Number of batteries		2 identical in series		
Battery voltage	V	12		
Capacity per Battery	Ah	18		
Fuse inside the battery cable	A	10A fast acting		

Technical Data • Fuses

Fuse	Fuse type	Current	Properties	Type
F1, Output O1	Electronic	configurable 1 - 3000mA	configurable (<1ms, ~ 5ms, ~ 50ms)	-
F2, Output O2	Electronic	configurable 1 - 3000mA	configurable (<1ms, ~ 5ms, ~ 50ms)	-
F3, Output O3	Electronic	configurable 1 - 3000mA	configurable (<1ms, ~ 5ms, ~ 50ms)	-
F4, Battery	Melt fuse	5A (Standard)	time delay	Littlefuse SMD-fuse Nano2 6,1 x 2,69 mm
Battery cabel	Melt fuse	10A	Fast acting	Littlefuse ATOF Blade red

Technical Data • Fuses

Properties	Description in NOXConfig
<1ms	Slow
~5ms	Medium
~50ms	Fast
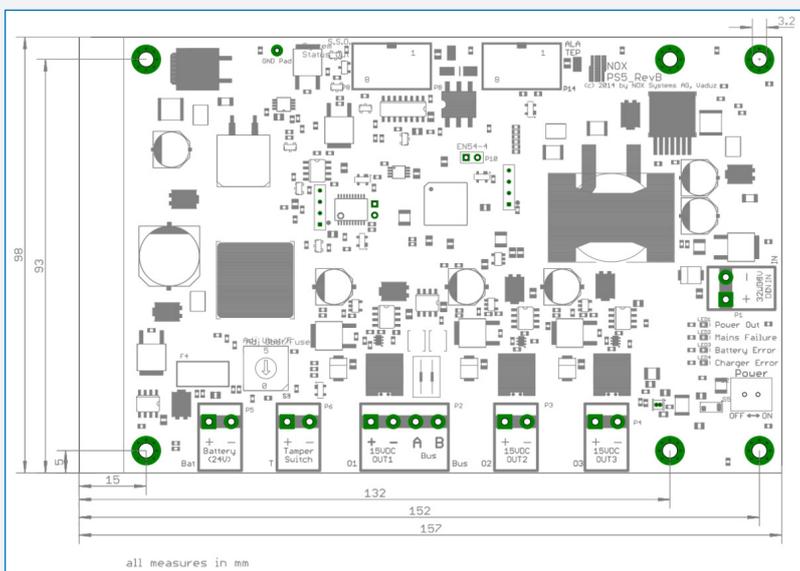
NOX PSU5-G3 • N136-G3

Terminal Assignment

Terminal Bat	1	2
Pin	+	-
Description	Battery (2 x 12V in series = 24V)	

Terminal T	1	2
Pin		
Description	Input opening-switch	

Terminal O1	+	-	A	B
Pin	+15V	GND	Bus A	Bus B
Description	Output voltage 1		Bus connection	

Terminal O2	+	-
Pin	+15V	GND
Description	Output voltage 2	

Terminal O3	+	-
Pin	+15V	GND
Description	Output voltage 3	

Terminal P1	+	-
Pin	IN	
Description	32VDC input from AC/DC switch-mode power supply	

Terminal P14 ALA / TEP	1	2	3	4	5	6	7	8
Pin	+15V	GND	SDA1	SCL1	GND	GND	SDA2	SCL2
Description	500mA max.		I2C channel 1				I2C channel 2	

Terminal P8 Status Out (SSO)	1	2	3	4	5	6	7	8
Pin	+15V	GND	n.c.	n.c.	OC	OC	M.B.	n.c.
Description	500mA max.		not in use		EN54-4 Mode: System status output		Mother-board present	not in use

Jumper P10	1	2
Pin	EN 54 state	GND

Use in fire alarm systems (eg supplying an alarm transmission unit): By placing a jumper on the P10, the unit is switched to EN-54 condition (according to EN-54-4). In this mode, the power supply works "stand alone" without communication via NOX bus. The jumper should only be inserted or removed when the power is off.
"System Status Out" (P8) must be connected to the fire alarm system.

NOX PSU5-G3 • N136-G3

Alarm parameters

Parameter	Error type	Treshold	Error
Battery voltage	Battery empty	< 22.0 V	Battery error
Battery voltage	Battery deep discharge protection	< 21.0 V	Battery error
Battery voltage	No battery present (no charge)	< 18.0 V	Battery error
Battery temperature	Battery temperature outside specifications	< 2 °C / > 50 °C	Battery temperature
Battery temperature	Battery temperature too high (turn off charging)	> 60 °C	Battery temperature
Battery overcharging	The battery is overcharged (turn off charging)	Charging current> 0.5A for more than 60 hours	Battery error
Battery voltage at the end of charging	Error setting charge battery voltage at end of charge	> ± 0,2 Vof the set value	Fault in charging voltage
Battery fuse	Battery fuse damaged	Voltage drop across fuse> 1.0 V	Battery fuse
Battery resistance	The resistance in the battery is too high	Resistance> 2Ω	Battery test
PCB temperature	PCB temperature is too high	> 80 °C	PCB temperature
Output current	Total output current too high	> 5,0 A (2A battery charging current)	Output current
Output current	Total output current too high	> 2,0 A (4A battery charging current)	Output current
input voltage	Fault in input voltage from AC / DC power supply	< 30.0 V / > 34.0 V	Input voltage error
The mains	Input voltage from AC / DC power supply lost	< 28.0 V	The mains failed
Output voltage	Error in 15V output	< 14.0 V / > 16.0 V	Output voltage
S1	Test the S1 switch	S1 defect	S1 defect
Communikation	No communication to NOX ALA	Lost	Communikation ALA

Overview of states

Parameter	EN 50131	Compatibility with old PS5	EN 54-4
Battery charging current	2A or 4A (configured by NoxConfig)	2A	2A
Max. output current	5A	5A	5A
Fuses	Freely configurable by NoxConfig	Preset by potentiometer	Preset
Potentiometer	No function	Set fuses	Battery voltage at the end of charging

NOX PSU5-G3 • N136-G3

Mode • Compatibility with old PS5

In PS5 compatibility mode, the power supply is controlled by a NOX Central with an older NOX CPU system version, which does not support the new PS5 Rev.B (NOX system version <R5).
In this setup, the PS5 Rev.B behaves like an old PS5 power supply.
The desired output fuses are hereby set by the potentiometer (rotary switch) S4.

Potentiometer position	Output current on O1	Output current on O2	Output current on O3
0	1.0 A	1.0 A	1.0 A
1	3.0 A	1.0 A	1.0 A
2	3.0 A	3.0 A	1.0 A
3	3.0 A	3.0 A	3.0 A
4	5.0 A	1.0 A	1.0 A
5	5.0 A	3.0 A	1.0 A
6	5.0 A	3.0 A	3.0 A
7	5.0 A	5.0 A	3.0 A
8	5.0 A	5.0 A	5.0 A
9	5.5 A	5.5 A	5.5 A

(permitted potentiometer positions for EN50131-compliant systems: 0..3!)

Fuse characteristics: set to 5 ms (medium)
Battery voltage at the end of charging: set to 27.4 V

Logged parameters • Compatibility with old PS5 mode

All parameters below are stored for 7 days at 5 minute intervals.
Thereafter, the daily average is stored for a total of 365 days.

Parameter	
Output current O1	Output current on O1
Output current O2	Output current on O2
Output current O3	Output current on O3
Battery voltage	Battery voltage during normal operation and when operating on batteries
Temperature	PCB temperature (measured on PCB between the two microprocessors)
DCin	Input voltage for the PS5 electronics

In addition, all error and alarm parameters incl. Time and date stamp ar logged.

ARAS
SECURITY

NOX PSU5-G3 • N136-G3

Mode • EN 50131

In EN 50131 mode, the power supply is operated with a NOX system according to EN 50131-6 type A.
Here, the NOX control panel controls and monitors the NOX Rev.B PS5 power supply.
Alarms and faults are transmitted to the NOX control panel, which signals this information.

Logged parameters • EN 50131 mode

All parameters below are stored for 7 days at 5 minute intervals.
Thereafter, the daily average is stored for a total of 365 days.

Parameter	
Output current O1	Output current on O1
Output current O2	Output current on O2
Output current O3	Output current on O3
Battery voltage	Battery voltage during normal operation and when operating on batteries
Temperature	PCB temperature (measured on PCB between the two microprocessors)
DCin	Input voltage for PS5 PCB
Battery power	Power at battery charging / discharging
Battery load test	Power by battery load test
Back tamper sensor	Value measured by back tamper sensor
Front tamper sensor	Value measured by Front (opening) tamper sensor

In addition, all error and alarm parameters incl. Time and date stamp are logged

Mode • EN 54-4

In EN 54-4 mode, the power supply functions as a stand-alone power supply (without NOX bus communication).
Alarms and faults are signaled on 4 LEDs and are obtained as a total fault output on "System Status Output" (P8).
The unit delivers 5A total output power and 2A battery charging power.
Imax a = 5A
Rimax = 2Ω
EN 54 mode is activated by setting a jumper on P10 (while the power supply is off!).

Potentiometer • EN 54-4 mode

The battery voltage at the end of charging is set by the rotary switch S4.

Position S4	Battery voltage at the end of charging @ 20 ° C
0	26.2 ±0.2 V
1	26.4 ±0.2 V
2	26.6 ±0.2 V
3	26.8 ±0.2 V
4	27.0 ±0.2 V
5	27.2 ±0.2 V
6	27.4 ±0.2 V
7	27.6 ±0.2 V
8	27.8 ±0.2 V
9	28.0 ±0.2 V

Fuses • EN 54-4 mode

The fuses are set to <1 ms delay = fast.

Fuse	Triggered by
F1 (O1)	3A
F2 (O2)	1A
F3 (O3)	1A

ARAS SECURITY
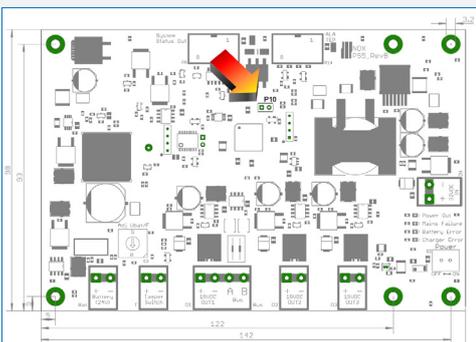
NOX PSU5-G3 • N136-G3

Supported batteries (2 x 12V)

Battery capacity	Charging current [3]	Charging time 80% capacity	Battery life @ 5A output current	Battery life @ 2A output current	Battery life @ 1A output current	Battery life @ 0,75A output current
7 Ah	2A	4,7 hours	1,9 hours	4,7 hours	9,3 hours	12,4 hours [1]
7 Ah	4A	not allowed	not allowed	not allowed	not allowed	not allowed
17 (/18) Ah	2A	11,3 hours	4,5 hours	11,3 hours	22,7 hours [1]	30,2 hours [1] [2]
17 (/18) Ah	4A	5,7 hours	not allowed	11,3 hours	22,7 hours [1]	30,2 hours [1] [2]

[1] EN 50131-3 class 1 and 2 compatible (min. 12 hours)
[2] With an alarm transmission unit EN 50131-3 class 3 and 4 compatible (min. 30 hours)
[3] at 4A charging current, total available output power at 15 VDC is reduced to 2.5 A.

NOTE.
For the exact calculation of battery backup time, the help function "calculation of battery backup time" is available in NoxConfig.

NOX ALA • Back tamper sensor module

The NOX AIA back tamper module is connected to the NOX PS5 RevB
and monitors whether the housing is removed from the mounting surface.

Description	Unit	Min.	Nominal	Max.
Dimensions (LxWxH	mm		84 x 14 x 12	
Weight	g		6	
Ambient temperature (eg in NOX cabinet)	°C	0		60
Humidity @ + 40 ° C (non-condensing)	% rF			93
Input voltage (supplied from NOX PS5 Rev.B)	VDC	8,0	15,0	16,5
Power consumption @ 15 VDC	mA			0,5
Measure distance	mm	5	40	100

ARAS
SECURITY
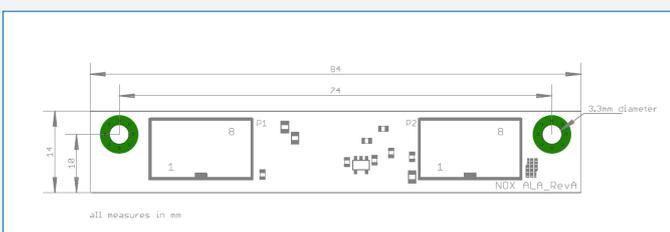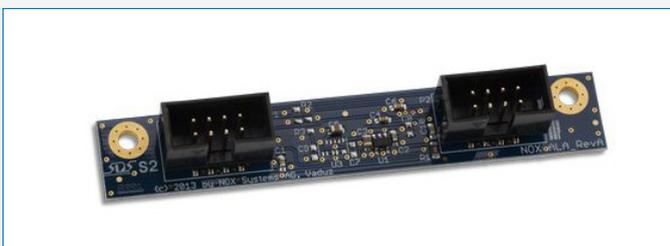
NOX PSU5-G3 • N136-G3

NOX TEP • Battery temperature sensor module				
Description	Unit	Min.	Nominal	Max.
Dimensions (LxWxH	mm	33 x 18 x 12		
Weight	g	4		
Ambient temperature (eg in NOX cabinet)	°C	0		60
Humidity @ + 40 ° C (non-condensing)	% rF			93
Input voltage (supplied from NOX PS5 Rev.B)	VDC	8,0	15,0	16,5
Power consumption @ 15 VDC	mA			0,1
Mechanical mounting		M3	M5	M7

18

8

1

33

NOX TEP
RevA

6

10

all measures in mm