

# NEVO+600S Series

## 600 Watts

- 5" x 3" x 1.61" package (suitable for 1U enclosure)
- IEC/EN/UL 62368-1 Approval
- Modular (factory and user configurable)
- Constant current or voltage operation
- Remote current and voltage programming
- Parallel and series configuration of modules
- 3 Year warranty



Dimensions:

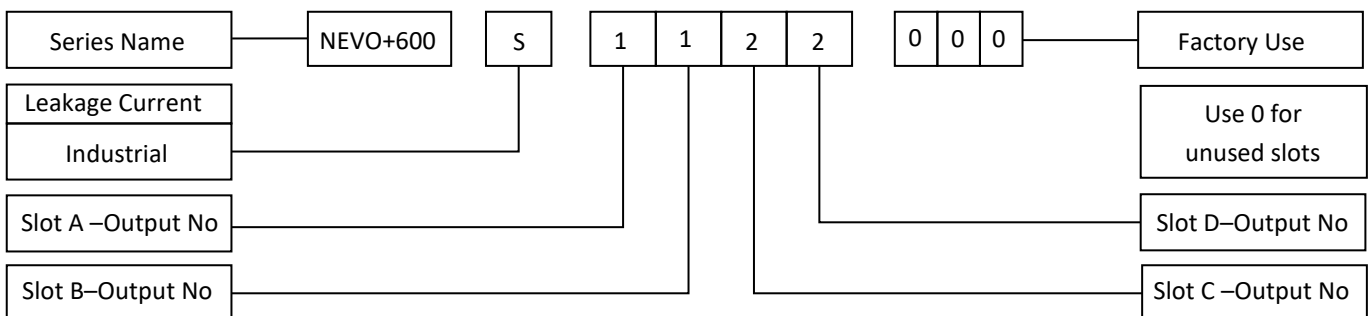
5" x 3" x 1.61"

The compact NEVO+600S IT and industrial power supply delivers an impressive 600W configurable power of 4 x 150W isolated modules that fit neatly in a 1U enclosure. The unit is impressively featured with analogue current and voltage programming, analogue current output signal, 5V 1A bias supply, global / local inhibit, AC OK and DC OK power good signals. The NEVO+600S allows accurate current sharing across multiple modules to handle the most demanding applications where a large current is required, also the unit can be configured in series to support applications requiring high voltages. The units utilise an integrated fan (low noise option for sound sensitive applications) which gives it thermal versatility for orientation flexibility to best suit your design.

## APPLICATIONS

- Test and measurement
- Robotics
- Oil and gas
- High vibration and shock
- Telecommunications
- Display applications
- Avionics
- Laboratory & analysis equipment
- Laser power
- LED lighting
- Retrofit of legacy PSUs
- 1U enclosure applications

## Part Numbering



Select modules from module summary table on page 2. The NEVO+600 can be configured with 1-4 output modules which can be configured in parallel for higher currents, in series for higher voltages or a combination of both to suit your application. Contact sales to discuss your requirements

## Output Module Summary

| Model              | Output Voltage |            |      | Output Current | Rated Power | Peak Power <sup>(1)</sup> | Load Reg. | Line Reg  | Cross Reg. | Ripple & Noise | FPMH <sup>(2)</sup> | Feature Set <sup>(3)</sup> |
|--------------------|----------------|------------|------|----------------|-------------|---------------------------|-----------|-----------|------------|----------------|---------------------|----------------------------|
|                    | Min            | Nom        | Max  |                |             |                           |           |           |            |                |                     |                            |
| OP1                | 1.5V           | <b>5V</b>  | 7.5V | 25A            | 125W        | 187.5W                    | ±50mV     | ±5mV      | ±10mV      | 50mVpk-pk      | 1                   | ABCDE                      |
| OP2                | 4.5V           | <b>12V</b> | 15V  | 15A            | 150W        | 225W                      | ±100mV    | ±12mV     | ±24mV      | 120mVpk-pk     | 1                   | ABCDE                      |
| OPA2               | 4.5V           | <b>12V</b> | 15V  | 25A            | 300W        | 375W                      | ±100mV    | ±0.1%Vnom | ±0.2%Vnom  | 1%Vnom         | 1                   | ABCDE                      |
| OP3                | 9V             | <b>24V</b> | 30V  | 7.5A           | 150W        | 225W                      | ±150mV    | ±24mV     | ±48mV      | 240mVpk-pk     | 1                   | ABCDE                      |
| OPA3               | 9V             | <b>24V</b> | 30V  | 15A            | 300W        | 450W                      | ±150mV    | ±0.1%Vnom | ±0.2%Vnom  | 1%Vnom         | 1                   | ABCDE                      |
| OP4                | 18V            | <b>48V</b> | 58V  | 3.75A          | 150W        | 225W                      | ±300mV    | ±48mV     | ±96mV      | 480mVpk-pk     | 1                   | ABCDE                      |
| OP5 <sup>(4)</sup> | 3.3V           | <b>12V</b> | 15V  | 5A ea          | 2 x 75W     | -                         | ±50mV     | ±12mV     | ±24mV      | 2% Vset        | 1                   | AF                         |

### Notes

1. Peak power is available when output voltage is adjusted above Vnom. Please see option card datasheet for details
2. 40°C ambient, 80% Load
3. A = Remote Sense    B = External voltage control    C = External current control    D = Current output signal    E = Current share    F = Dual output
4. OP5 Dual outputs have two independently adjustable outputs across the stated ranges above
5. Please view option card data sheets for details

## Input Module Specifications

| Parameter                  | Minimum                         | Typical       | Maximum | Units       | Notes & Conditions  |
|----------------------------|---------------------------------|---------------|---------|-------------|---|
| Input voltage              | 85                              |               | 264     | VAC         | Nominal is 100V-240V RMS.<br>Derate from 120VAC by 4.28W/V to 85VAC |
|                            | 120                             |               | 370     | VDC         |   |
| Input frequency            | 47                              |               | 63      | Hz          | For 400Hz please contact sales                                      |
| Power factor               |                                 | 0.96          | 0.99    |             | Typical value for 300W at 240Vrms input                             |
| Input current              |                                 |               | 6       | A           | 600W output 120Vrms input   |
| Input current limit        |                                 | 8             |         | A           |   |
| Inrush current             |                                 |               | 20      | A           | 264Vrms 25°C (cold start)   |
| Input protection           |                                 |               | 8       | A           | Both lines fused 5x20 fast fuses                                    |
| No load input power        | 21                              |               | 28      | W           | 21W disabled outputs, 28W enabled outputs                           |
| Efficiency                 |                                 | 86            | 89      | %           | See graphs for details  |
| Holdup                     | 17                              | 20            | 21      | mS          | 600W at 120Vrms input   |
| UVLO                       | 78                              |               | 84      | VRMS        | Turn on under voltage   |
| Overtemperature protection | 115                             |               | 125     | °C          | Latching  |
| Reliability                |                                 |               | 2       | FPMH        | 40°C 80% Load   |
| Size                       | 5 (133.7) x 3(77.7) x 1.61 (41) |               |         | Inches (mm) | LxWxH   |
| Weight                     |                                 | 360+60/module |         | g           |   |
| Isolation voltages         |                                 |               | 4000    | VAC         | Input to output   |
|                            |                                 |               | 1500    | VAC         | Input to chassis  |
|                            |                                 |               | 250     | VDC         | Output to chassis   |
|                            |                                 |               | 250     | VDC         | Output to output  |
| Isolation clearance        | 7                               |               |         | mm          | Primary—secondary (reinforced)                                      |
|                            | 2.5                             |               |         | mm          | Primary—chassis (basic)   |
| Isolation creepage         | 12                              |               |         | mm          | Primary—secondary (reinforced)                                      |
|                            | 4                               |               |         | mm          | Primary—chassis (basic)   |
| Leakage current            |                                 |               | 1500    | uA          | Normal condition, 264VAC, 63Hz, 25°C                                |

## Signal Specifications

| Parameter              | Minimum | Typical | Maximum | Units | Notes & Conditions   |
|------------------------|---------|---------|---------|-------|--|
| Bias voltage           | 4.8     | 5       | 5.2     | V     |  |
| Bias current           | 0       |         | 1       | A     |  |
| AC_OK Voltage          | 1       |         | 4       | V     | Low output level / High output level                       |
| AC_OK Current          | -10     |         | 20      | mA    |  |
| AC_OK warning          | 5       |         |         | ms    | See user manual  |
| Power good voltage     | 8       | 10      | 15      | V     | PNP open collector output, 10K $\Omega$ pull down resistor |
| Power good current     | 0       |         | 20      | mA    |  |
| Inhibit voltage        | 2       |         | 15      | V     |  |
| Inhibit current        | 0.2     |         | 1.5     | mA    | 10K $\Omega$ input impedance.                              |
| Global inhibit voltage | 3       |         | 15      | V     |  |
| Global inhibit current | 0.6     |         | 3       | mA    | 5K $\Omega$ input impedance                                |

## Environmental

| Parameter              | Minimum   | Typical | Maximum | Units        | Notes & Conditions                           |
|------------------------|---|---------|---------|--------------|--|
| Operating temperature  | -20   |         | 70      | $^{\circ}$ C | See p4 for derating curve                    |
| Storage temperature    | -40   |         | 85      | $^{\circ}$ C |  |
| Operating humidity     | 5   |         | 95      | %RH          | Non condensing                               |
| Operating air pressure | 78  |         | 106     | KPa          |  |
| Storage air pressure   | 54  |         | 106     | KPa          |  |
| Storage humidity       | 5   |         | 95      | %RH          | Non condensing                               |
| Operating altitude     | -200  |         | 3000    | M            |  |
| Non-operating altitude | -200  |         | 5000    | M            |  |
| Fan noise              | 36  |         | 60      | dBA          | 1m from fan intake –Low noise fans available |
| Operating shock        | 3000 bumps at 10G (16ms) half sine wave                           |         |         |              |  |
| Vibration              | 1.5G to 200Hz sine wave, 20G for 15min in 3 axes random vibration |         |         |              |  |

## Installation Specifications

| Parameter             | Details                | Parameter                  | Details                  |
|-----------------------|------------------------|----------------------------|--------------------------|
| Equipment class       | I                      | Flammability rating        | 94V-2                    |
| Installation category | II                     | Ingress protection         | IP10                     |
| Material group        | IIIb (indoor use only) | ROHS3 compliance           | 2011/65/EU + 2015/863/EU |
| Pollution degree      | 2                      | Intended usage environment | Industrial equipment     |

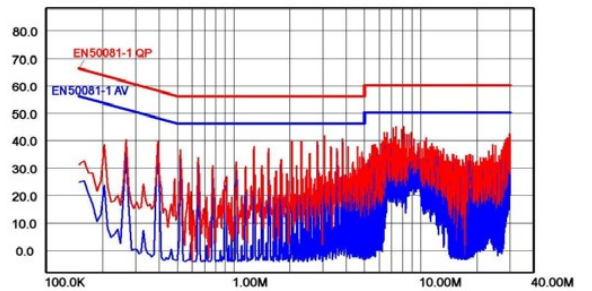
## Safety Approvals

|    | Safety standard                        | Notes & Conditions   |
|----|--|--|
| UL | UL 62368-1<br>CAN/CSA-22.2 No. 62368-1 | UL file E316486  |
| CB | IEC 62368-1 2014                       |  |
| EU | EN 62368-1 2014                        |  |
| CE |  | 2014/30/EU EMC directive, 2014/35/EU Low voltage directive |

## EMC: Emissions

|                  | Standard    | Test level | Notes & Conditions       |
|------------------|-------------|------------|--------------------------|
| Conducted        | EN55022/11  | B          | FCC part 15, CISPR 22/11 |
| Radiated         | EN55022/11  | B          |                          |
| Harmonic current | EN61000-3-2 | Class A    |                          |
| Voltage flicker  | EN61000-3-3 |            |                          |

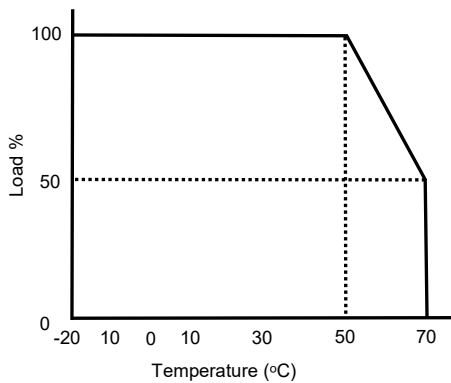
Typical Conducted Emissions



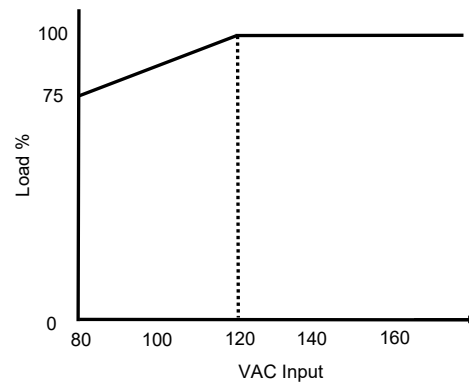
## EMC: Immunity

|                       | Standard     | Test level  | Criteria | Notes & Conditions                       |
|-----------------------|--------------|---|----------|--|
| ESD                   | EN61000-4-2  | 4   | A        | 15KV Air, 8KV Contact                    |
| Radiated              | EN61000-4-3  | 3   | A        | 10V/m 80MHz-2.7GHz sine wave 80% AM 1KHz |
| EFT                   | EN61000-4-4  | 3   | A        | 2KV Power, 1KV I/O                       |
| Surges                | EN61000-4-5  | Installation Class 3  | A        | 1KV Live-Neutral, 2KV Live/Neutral—Earth |
| Conducted             | EN61000-4-6  | 4   | A        | 10V, 0.15 to 80MHz sine wave 80AM 1KHz   |
| PFMF                  | EN61000-4-8  | 3   | A        | 10A/m 50Hz                               |
| Voltage dips          | EN61000-4-11 | 95% 0.5 & 1 cycle A, 30% 25 cycles A (240/100VAC), 60% 10 cycles A/C (240/100VAC) |          |  |
| Voltage Interruptions | EN61000-4-11 | >95% interruption 250 cycles C (IEC60601-1-1-2: 2014)                             |          |  |

Power Derating Curve

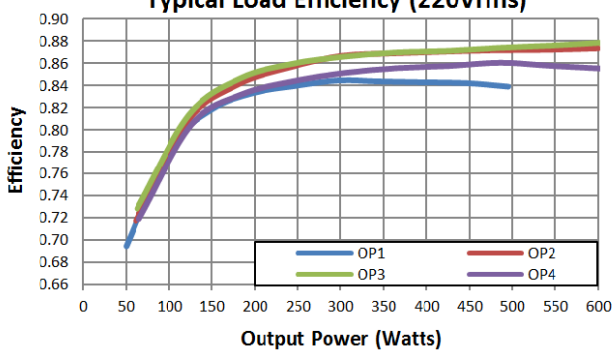


AC Input Derating Curve

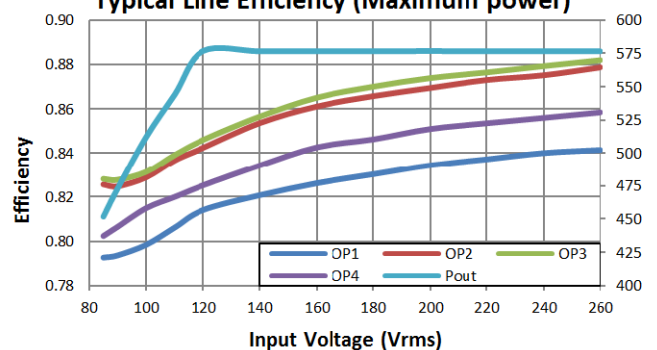


## Efficiency

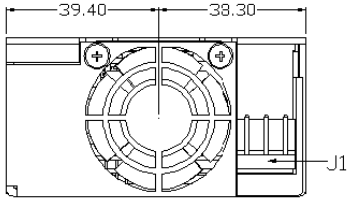
Typical Load Efficiency (220Vrms)



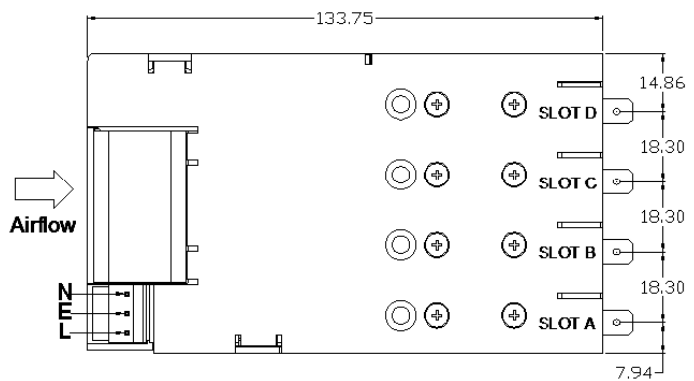
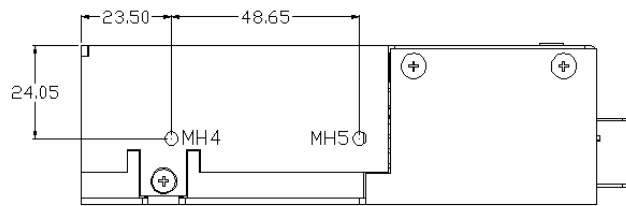
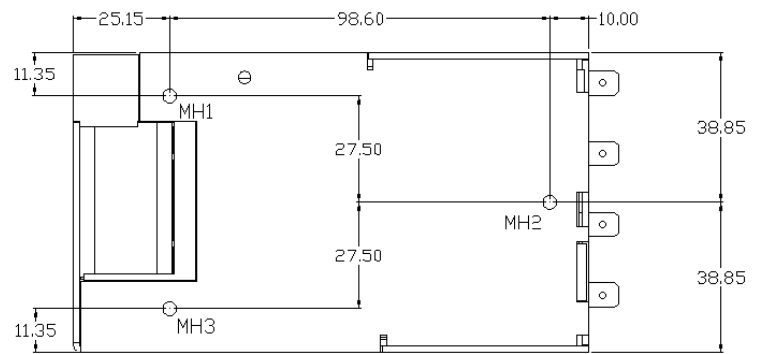
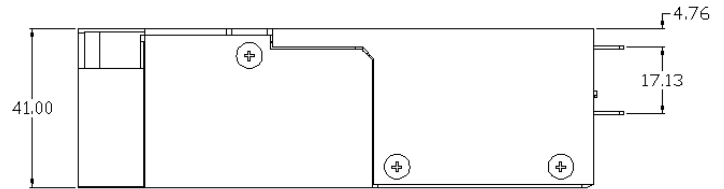
Typical Line Efficiency (Maximum power)



## Mechanical Details



**N - Neutral**  
**E - Earth**  
**L - Live**

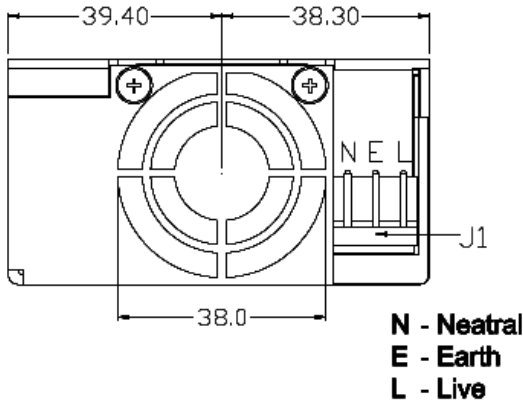


| Screws                             |                           |
|------------------------------------|---------------------------|
| <b>MH1, MH2, MH3, MH4, and MH5</b> |                           |
| Screw type                         | M4                        |
| Torque                             | 0.55 Nm                   |
| Thread depth                       | 4mm max including chassis |
| <b>Output modules x 8</b>          |                           |
| Screw type                         | M3x5 counter sink Posi,   |
| Torque                             | 0.35Nm                    |
| Thread depth                       | Defined by screw          |
| <b>Chassis x 5</b>                 |                           |
| Screw type                         | M3x5 counter sink Posi,   |
| Torque                             | 0.35Nm                    |
| Thread depth                       | Defined by screw          |
| <b>Fan x 2</b>                     |                           |
| Screw type                         | M3x30 counter sink Posi,  |
| Torque                             | 0.35Nm                    |
| Thread depth                       | Defined by screw          |

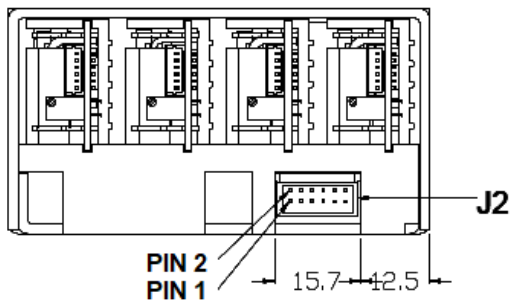
## Notes

1. Torque settings are for general reference only. The torque settings shown are the inset manufacturers recommended values

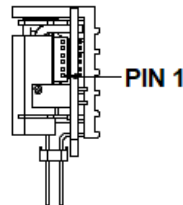
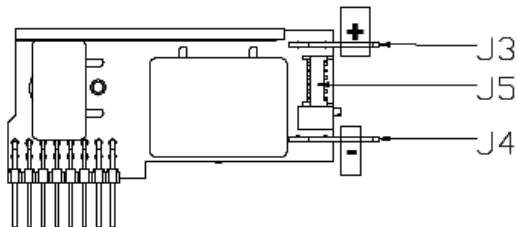
## Connector Details



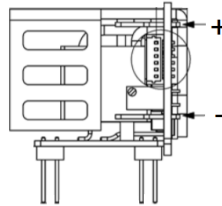
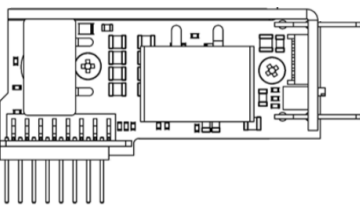
| Pin Connections (J1)<br>Mains input <sup>(1)</sup> |          |
|--|----------|
| Pin  | Function |
| 1  | Live     |
| 2  | Earth    |
| 3  | Neutral  |



| Pin Connections (J2) <sup>(2)</sup> |                    |        |
|-------------------------------------|--------------------|--------|
| Pin                                 | Function           | Slot   |
| 1                                   | Power good         | Slot A |
| 2                                   | Inhibit            |        |
| 3                                   | Power good         | Slot B |
| 4                                   | Inhibit            |        |
| 5                                   | Power good         | Slot C |
| 6                                   | Inhibit            |        |
| 7                                   | Power good         | Slot D |
| 8                                   | Inhibit            |        |
| 9                                   | Global inhibit     |        |
| 10                                  | AC OK              |        |
| 11                                  | +5V Bias supply 1A |        |
| 12                                  | COM                |        |



| Pin Connections (J5)<br>Output signals OP1-4 <sup>(4)</sup> |                          |
|---|--------------------------|
| Pin   | Function                 |
| 1   | - Sense                  |
| 2   | +Sense                   |
| 3   | V Control                |
| 4   | I Control / mon / share  |
| 5   | COM                      |
| 6   | +5V Bias supply 10mA max |



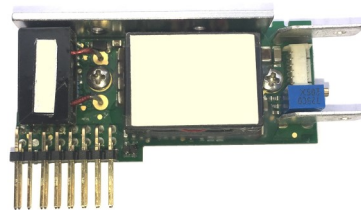
### Notes

- J1 mating housing molex 10013036 with 0008701031 pins (18-24 AWG)
- J2 mating housing molex 511101251 with 05003948051 pins (24-30 AWG)
- J3/4 tabs 6.35 x 0.8mm
- J5 mating housing 0510210600 with 0500588000 pins (28-32 AWG)
- All cables must be 105°C min, equivalent to UL1015
- All dimensions in mm

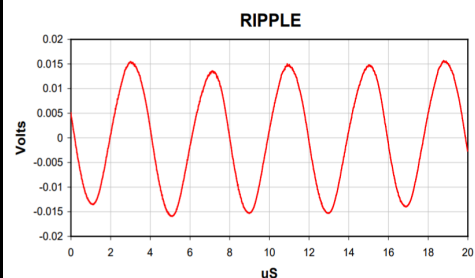
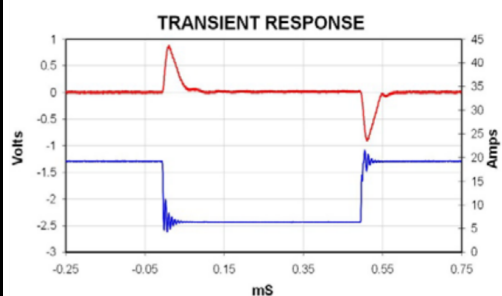
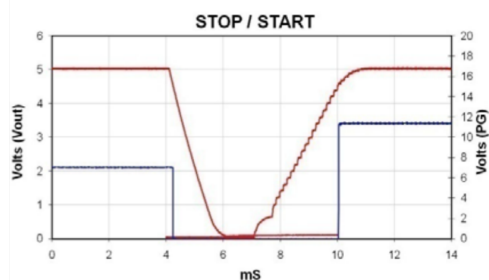
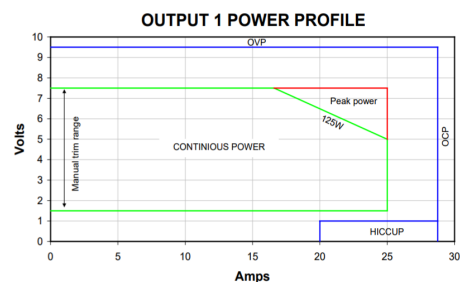
# Nevo+600 Series module 1: 1.5-7.5V 125W

## 125 Watts

- Peak power 187.5W (<5 sec 50 duty cycle)
- Remote current and voltage programming
- Current share in parallel operation
- Remote sense
- 5 Year warranty



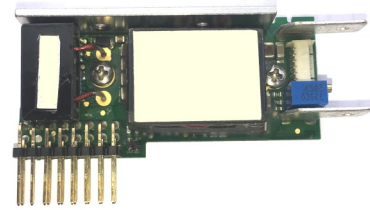
| Parameter                        | Min   | Typical      | Max   | Units  | Notes & Conditions  |
|----------------------------------|-------|--------------|-------|--------|---|
| Output voltage range             | 1.5   | 5            | 7.5   | V      | Manual adjustment   |
| Output current rating            |       |              | 25    | A      |   |
| Output power rating              |       |              | 125   | W      |   |
| Peak power rating                |       |              | 187.5 | W      | Max 5 seconds 50% duty cycle                                      |
| Initial voltage setting accuracy | -0.5  |              | 0.5   | %      | Factory set units   |
| Manual voltage adjust            |       | 0.545        |       | V/turn | 11 turn potentiometer   |
| Load regulation                  | -50   |              | 50    | mV     | Measured at sense terminals                                       |
| Line regulation                  | -0.1  |              | 0.1   | % Vnom | Measured at sense terminals                                       |
| Cross regulation                 | -0.2  |              | 0.2   | % Vnom | Measured at sense terminals                                       |
| Minimum Load                     | 0     |              |       | W      |   |
| Temperature coefficient          | -0.02 |              | +0.02 | % /°C  |   |
| Noise and ripple                 |       |              | 1     | % Vnom | 20MHz bandwidth pk-pk   |
| Transient response               |       |              | 1     | V      | 25%-75% load change at 0.25A/us recovery within 10% in 100uS      |
| Turn on rise time                | 1.5   |              | 3.5   | mS     | Monotonic 10%-90%   |
| Turn on overshoot                |       |              | 0.1   | % Vset |   |
| Turn on delay                    |       | 600          | 750   | mS     | AC-Power good   |
|                                  |       | 15           | 20    | mS     | Enable to power good  |
| Current share accuracy           |       |              | 5     | %      |   |
| Open sense offset                |       |              | 2     | % Vnom | Open sense, voltage offset due to bias currents                   |
| Holdup voltage                   |       |              | 6     | V      |   |
| Isolation to ground              |       |              | 250   | V      | Each output terminal  |
| Overcurrent protection           | 105   |              | 125   | %Inom  |   |
| Reverse current protection       | -6    |              | 0     | %Inom  |   |
| Short circuit protection         |       | 125/3/1      |       | mS/%V  | Period/Duty cycle/Voltage Threshold (Measured at sense terminals) |
| Overvoltage protection           |       | 9.5          |       | V      | Latching  |
| Over temperature protection      | 115   |              | 125   | °C     | Internally monitored, latching                                    |
| Sense cable protection           | -1    |              | 2     | V      | Positive  |
|                                  |       |              | 1     | V      | Negative  |
| Power good threshold             |       | 90           |       | % Vset | Low threshold only  |
| Current output signal            | 0     |              | 110   | %Inom  | $I_{sig} = 0.6 + I_{out} / (I_{nom} * 1.25)$                      |
| Current limit control            | 0     |              | 110   | %Inom  | $I_{limit} = (V_{ctrl} - 0.6) * I_{nom} * 1.25$                   |
| Remote voltage control           | 0     |              | 300   | % Vset | $V_{out} = V_{set} * ((1.8 - V_{ctrl}) / 0.6)$                    |
| Bias supply                      | 4.5   | 5            | 5.2   | V      | 10mA max  |
| Reliability                      |       |              | 1     | FPMH   | 40°C 80% load   |
| Size                             |       | 60 x 35 x 17 |       | mm     | LxWxH   |
| weight                           |       | 60           |       | g      |   |
| Wire size                        | 12    | 10           |       | AWG    |   |



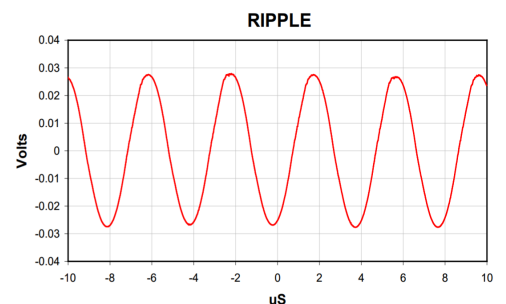
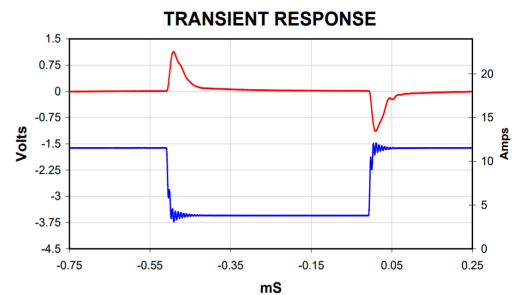
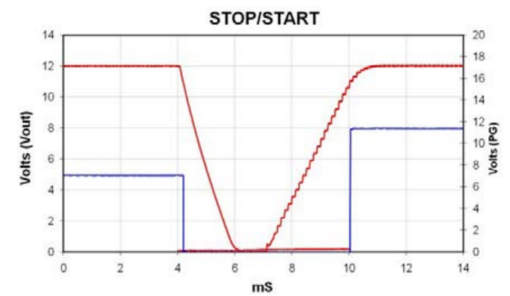
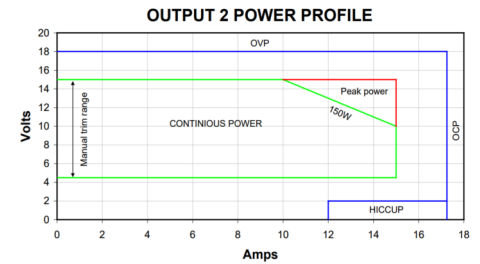
# Nevo+600 Series module 2: 4.5-15V 150W

## 150 Watts

- Peak power 225W (<5 sec 50 duty cycle)
- Remote current and voltage programming
- Current share in parallel operation
- Remote sense
- 5 Year warranty



| Parameter                        | Min   | Typical      | Max   | Units  | Notes & Conditions  |
|----------------------------------|-------|--------------|-------|--------|---|
| Output voltage range             | 4.5   | 12           | 15    | V      | Manual adjustment   |
| Output current rating            |       |              | 15    | A      |   |
| Output power rating              |       |              | 150   | W      |   |
| Peak power rating                |       |              | 225   | W      | Max 5 seconds 50% duty cycle                                      |
| Initial voltage setting accuracy | -0.5  |              | 0.5   | %      | Factory set units   |
| Manual voltage adjust            |       | 0.954        |       | V/turn | 11 turn potentiometer   |
| Load regulation                  | -100  |              | 100   | mV     | Measured at sense terminals                                       |
| Line regulation                  | -0.1  |              | 0.1   | % Vnom | Measured at sense terminals                                       |
| Cross regulation                 | -0.2  |              | 0.2   | % Vnom | Measured at sense terminals                                       |
| Minimum Load                     | 0     |              |       | W      |   |
| Temperature coefficient          | -0.02 |              | +0.02 | % /°C  |   |
| Noise and ripple                 |       |              | 1     | % Vnom | 20MHz bandwidth pk-pk   |
| Transient response               |       |              | 1.5   | V      | 25%-75% load change at 0.25A/us recovery within 10% in 100uS      |
| Turn on rise time                | 1.5   |              | 3.5   | mS     | Monotonic 10%-90%   |
| Turn on overshoot                |       |              | 0.1   | % Vset |   |
| Turn on delay                    |       | 600          | 750   | mS     | AC-Power good   |
|                                  |       | 15           | 20    | mS     | Enable to power good  |
| Current share accuracy           |       |              | 5     | %      |   |
| Open sense offset                |       |              | 2     | % Vnom | Open sense, voltage offset due to bias currents                   |
| Holdup voltage                   |       |              | 12.5  | V      |   |
| Isolation to ground              |       |              | 250   | V      | Each output terminal  |
| Overcurrent protection           | 105   |              | 125   | %Inom  |   |
| Reverse current protection       | -6    |              | 0     | %Inom  |   |
| Short circuit protection         |       | 125/3/2      |       | mS/%V  | Period/Duty cycle/Voltage Threshold (Measured at sense terminals) |
| Overvoltage protection           |       | 18           |       | V      | Latching  |
| Over temperature protection      | 115   |              | 125   | °C     | Internally monitored, latching                                    |
| Sense cable protection           | -1    |              | 2     | V      | Positive  |
|                                  |       |              | 1     | V      | Negative  |
| Power good threshold             |       | 90           |       | % Vset | Low threshold only  |
| Current output signal            | 0     |              | 110   | %Inom  | $I_{sig} = 0.6 \cdot I_{out} / (I_{nom} \cdot 1.25)$              |
| Current limit control            | 0     |              | 110   | %Inom  | $I_{limit} = (V_{ctrl} - 0.6) \cdot I_{nom} \cdot 1.25$           |
| Remote voltage control           | 0     |              | 300   | % Vset | $V_{out} = V_{set} \cdot ((1.8 - V_{ctrl}) / 0.6)$                |
| Bias supply                      | 4.5   | 5            | 5.2   | V      | 10mA max  |
| Reliability                      |       |              | 1     | FPMH   | 40°C 80% load   |
| Size                             |       | 60 x 35 x 17 |       | mm     | LxWxH   |
| weight                           |       | 60           |       | g      |   |
| Wire size                        | 16    | 14           | 10    | AWG    |   |

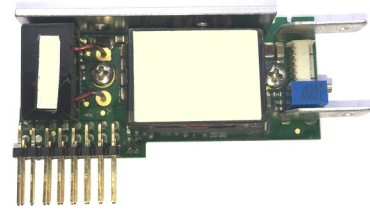




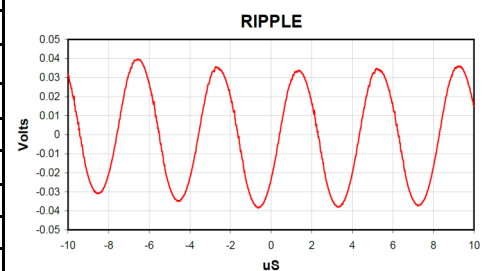
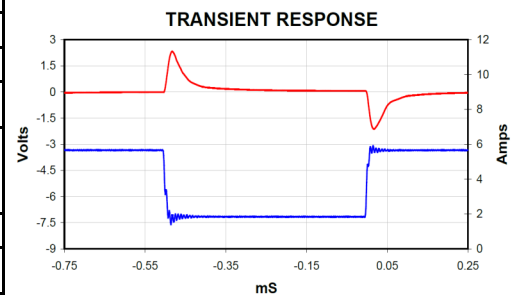
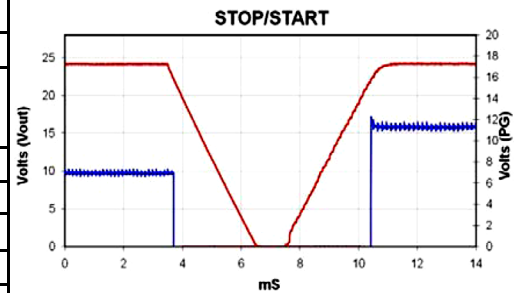
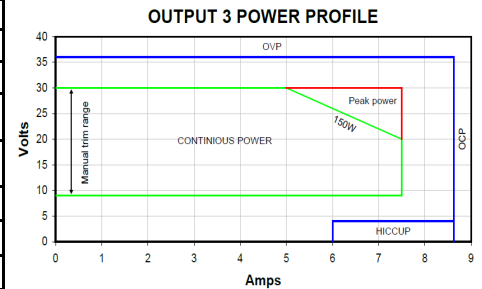
# Nevo+600 Series output module 3: 9-30V 150W

## 150 Watts

- Peak power 225W (<5 sec 50% duty cycle)
- Remote current and voltage programming
- Current share in parallel operation
- Remote sense
- 5 Year warranty



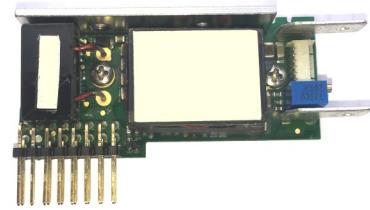
| Parameter                        | Min          | Typical   | Max   | Units  | Notes & Conditions  |
|----------------------------------|--------------|-----------|-------|--------|---|
| Output voltage range             | 9            | 24        | 30    | V      | Manual adjustment   |
| Output current rating            |              |           | 7.5   | A      |   |
| Output power rating              |              |           | 150   | W      |   |
| Peak power rating                |              |           | 225   | W      | Max 5 seconds 50% duty cycle  |
| Initial voltage setting accuracy | -0.5         |           | 0.5   | %      | Factory set units   |
| Manual voltage adjust            |              | 1.9       |       | V/turn | 11 turn potentiometer   |
| Load regulation                  | -150         |           | 150   | mV     | Measured at sense terminals   |
| Line regulation                  | -0.1         |           | 0.1   | % Vnom | Measured at sense terminals   |
| Cross regulation                 | -0.2         |           | 0.2   | % Vnom | Measured at sense terminals   |
| Minimum Load                     | 0            |           |       | W      |   |
| Temperature coefficient          | -0.02        |           | +0.02 | % /°C  |   |
| Noise and ripple                 |              |           | 1     | % Vnom | 20MHz bandwidth pk-pk   |
| Transient response               |              |           | 3     | V      | 25%-75% load change at 0.25A/<br>us recovery within 10% in<br>100uS     |
| Turn on rise time                | 1.5          |           | 3.5   | mS     | Monotonic 10%-90%   |
| Turn on overshoot                |              |           | 0.1   | % Vset |   |
| Turn on delay                    |              | 600       | 750   | mS     | AC-Power good   |
|                                  |              | 15        | 20    | mS     | Enable to power good  |
| Current share accuracy           |              |           | 5     | %      |   |
| Open sense offset                |              |           | 2     | % Vnom | Open sense, voltage offset due<br>to bias currents                      |
| Holdup voltage                   |              |           | 25    | V      |   |
| Isolation to ground              |              |           | 250   | V      | Each output terminal  |
| Overcurrent protection           | 105          |           | 125   | %Inom  |   |
| Reverse current protection       | -6           |           | 0     | %Inom  |   |
| Short circuit protection         |              | 125/3/3.5 |       | mS/%V  | Period/Duty cycle/Voltage<br>Threshold (Measured at sense<br>terminals) |
| Overvoltage protection           |              | 36        |       | V      | Latching  |
| Over temperature protection      | 115          |           | 125   | °C     | Internally monitored, latching  |
| Sense cable protection           | -1           |           | 2     | V      | Positive  |
|                                  |              |           | 1     | V      | Negative  |
| Power good threshold             |              | 90        |       | % Vset | Low threshold only  |
| Current output signal            | 0            |           | 110   | %Inom  | $I_{sig} = 0.6 + I_{out} / (I_{nom} * 1.25)$                            |
| Current limit control            | 0            |           | 110   | %Inom  | $I_{limit} = (V_{ctrl} - 0.6) * I_{nom} * 1.25$                         |
| Remote voltage control           | 0            |           | 300   | % Vset | $V_{out} = V_{set} * ((1.8 - V_{ctrl}) / 0.6)$                          |
| Bias supply                      | 4.5          | 5         | 5.2   | V      | 10mA max  |
| Reliability                      |              |           | 1     |        | 40°C 80% load   |
| Size                             | 60 x 35 x 17 |           |       | mm     | LxWxH   |
| weight                           |              | 60        |       | g      |   |
| Wire size                        | 20           | 18        | 10    | AWG    |   |



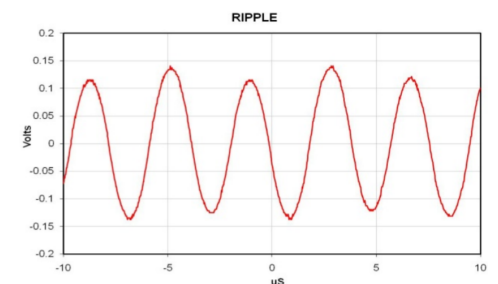
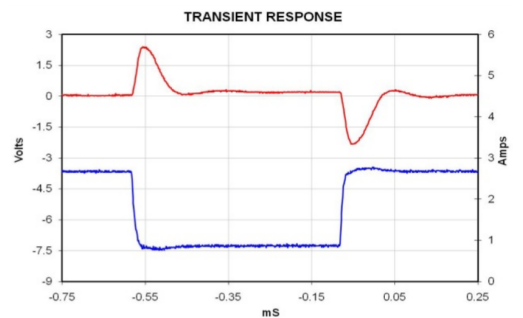
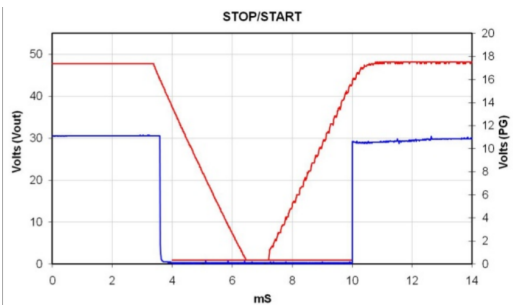
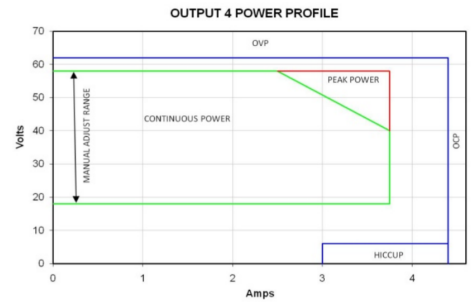
# Nevo+600 Series module 4: 18-58V 150W

## 150 Watts

- Peak power 225W (<5 sec 50 duty cycle)
- Remote current and voltage programming
- Current share in parallel operation
- Remote sense
- 5 Year warranty



| Parameter                        | Min   | Typical      | Max   | Units  | Notes & Conditions  |
|----------------------------------|-------|--------------|-------|--------|---|
| Output voltage range             | 18    | 48           | 58    | V      | Manual adjustment   |
| Output current rating            |       |              | 3.75  | A      |   |
| Output power rating              |       |              | 150   | W      |   |
| Peak power rating                |       |              | 225   | W      | Max 5 seconds 50% duty cycle  |
| Initial voltage setting accuracy | -0.5  |              | 0.5   | %      | Factory set units   |
| Manual voltage adjust            |       | 3.6          |       | V/turn | 11 turn potentiometer   |
| Load regulation                  | -300  |              | 300   | mV     | Measured at sense terminals   |
| Line regulation                  | -0.1  |              | 0.1   | % Vnom | Measured at sense terminals   |
| Cross regulation                 | -0.2  |              | 0.2   | % Vnom | Measured at sense terminals   |
| Minimum Load                     | 0     |              |       | W      |   |
| Temperature coefficient          | -0.02 |              | +0.02 | % /°C  |   |
| Noise and ripple                 |       |              | 1     | % Vnom | 20MHz bandwidth pk-pk   |
| Transient response               |       |              | 3     | V      | 25%-75% load change at 0.25A/us recovery within 10% in 100uS            |
| Turn on rise time                | 1.5   |              | 3.5   | mS     | Monotonic 10%-90%   |
| Turn on overshoot                |       |              | 0.1   | % Vset |   |
| Turn on delay                    |       | 600          | 750   | mS     | AC-Power good   |
|                                  |       | 15           | 20    | mS     | Enable to power good  |
| Current share accuracy           |       |              | 5     | %      |   |
| Open sense offset                |       |              | 2     | % Vnom | Open sense, voltage offset due to bias currents                         |
| Holdup voltage                   |       |              | 50    | V      |   |
| Isolation to ground              |       |              | 250   | V      | Each output terminal  |
| Overcurrent protection           | 105   |              | 125   | %Inom  |   |
| Reverse current protection       | -6    |              | 0     | %Inom  |   |
| Short circuit protection         |       | 125/3/3.5    |       | mS/%V  | Period/Duty cycle/Voltage Threshold (Measured at sense terminals)       |
| Overvoltage protection           |       | 66           |       | V      | Latching  |
| Over temperature protection      | 115   |              | 125   | °C     | Internally monitored, latching  |
| Sense cable protection           | -3    |              | 3     | V      | Positive  |
|                                  |       |              | 2     | V      | Negative  |
| Power good threshold             |       | 90           |       | % Vset | Low threshold only  |
| Current output signal            | 0     |              | 110   | %Inom  | I <sub>sig</sub> = 0.6 +I <sub>out</sub> / (I <sub>nom</sub> * 1.25)    |
| Current limit control            | 0     |              | 110   | %Inom  | I <sub>limit</sub> = (V <sub>ctrl</sub> -0.6) * I <sub>nom</sub> * 1.25 |
| Remote voltage control           | 0     |              | 300   | % Vset | V <sub>out</sub> = V <sub>set</sub> ((1.8-V <sub>ctrl</sub> ) / 0.6)    |
| Bias supply                      | 4.5   | 5            | 5.2   | V      | 10mA max  |
| Reliability                      |       |              | 1     | FPMH   | 40°C 80% load   |
| Size                             |       | 60 x 35 x 17 |       | mm     | LxWxH   |
| weight                           |       | 60           |       | g      |   |
| Wire size                        | 20    | 18           | 10    | AWG    |   |

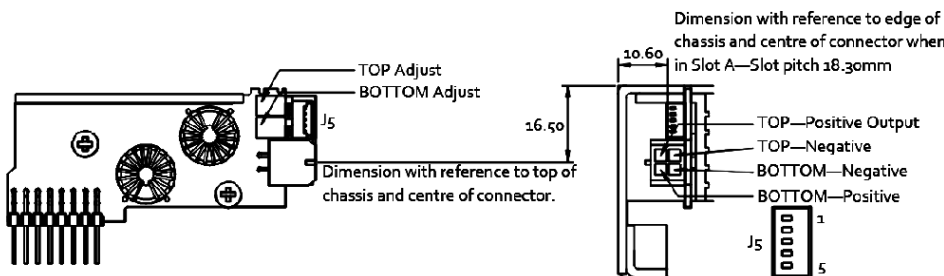
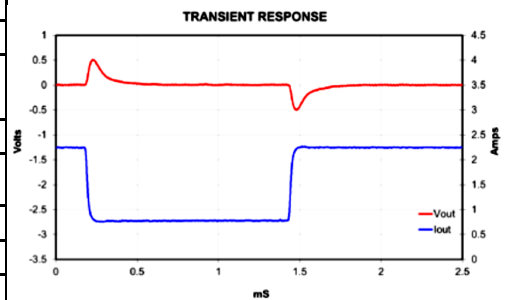
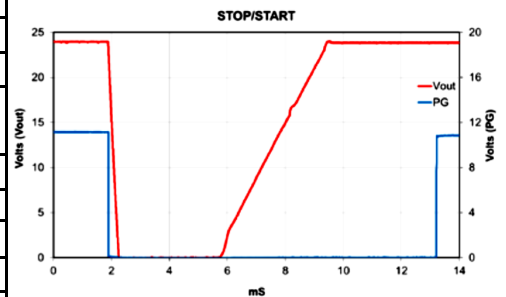
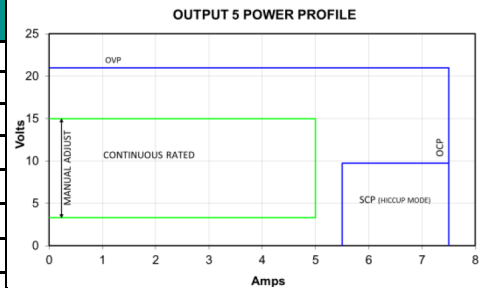


# Nevo+600 Series module 5: Dual 12V 2x75W

## 150 Watts

- 2 x 12V independent channels
- Wide voltage range 3.3-15V
- Over current, reverse current, over voltage and short circuit protection
- 5 Year warranty

| Parameter                   | Min   | Typical      | Max  | Units  | Notes & Conditions   |
|-----------------------------|-------|--------------|------|--------|--|
| Output voltage range        | 3.3   | 12           | 15   | V      | Manual adjustment. -20 to 70°C                               |
| Output current rating       |       |              | 5    | A      | Each channel   |
| Output power rating         |       | 60           | 75   | W      | Each channel   |
| Initial voltage accuracy    | -0.5  |              | 0.5  | &      |  |
| Manual voltage adjust       |       | 1.1          |      | V/turn | 11 turn potentiometer  |
| Load regulation             | -50   |              | 50   | mV     | Measured at sense terminals                                  |
| Line regulation             | -0.1  |              | 0.1  | %Vnom  | Measured at sense terminals                                  |
| Cross regulation            | -0.2  |              | 0.2  | %Vnom  | Measured at sense terminals                                  |
| Minimum Load                | 0     |              |      | W      |  |
| Temperature coefficient     | -0.02 |              | 0.02 | %/°C   |  |
| Noise and ripple            |       |              | 2    | % Vset | 20MHz bandwidth pk-pk  |
| Transient response          |       |              | 1    | V      | 25%-75% load change at 0.25A/us recovery within 10% in 100uS |
| Turn on rise time           | 2     |              | 4    | mS     | Monotonic 10%-90%  |
| Turn on overshoot           |       |              | 1    | % Vset |  |
| Turn on delay               |       | 600          | 750  | mS     | AC-Power good  |
|                             |       | 30           | 40   | mS     | Enable to power good   |
| Holdup voltage              |       |              | 12   | V      |  |
| Isolation to ground         |       |              | 250  | V      | Each output terminal   |
| Overcurrent protection      | 105   |              | 175  | %Inom  |  |
| Short circuit protection    |       | 260/3.5/65   |      | mS/%V  | Period/Duty cycle/Voltage Threshold                          |
| Overvoltage protection      |       | 21           |      | V      | Latching   |
| Over temperature protection | 115   |              | 125  | °C     | Internally monitored, latching                               |
| Power good threshold        |       | 92.5         |      | % Vset | Low threshold only   |
| Reliability                 |       |              | 1    | FPMH   | 40°C 80% load Telcordia SR332                                |
| Size                        |       | 60 x 35 x 17 |      | mm     | LxWxH  |
| weight                      |       | 60           |      | g      |  |
| Wire size                   | 20    | 18           | 10   | AWG    |  |



| J5 Output signals <sup>(1)</sup> |                |
|----------------------------------|----------------|
| Pin                              | Function       |
| 1                                | Top + Sense    |
| 2                                | Top - Sense    |
| 3                                | NC             |
| 4                                | Bottom + Sense |
| 5                                | Bottom - Sense |

### Notes

1. J5 mating connector molex 0510210500 with 0500588000 pins (28-32 AWG)
2. J1 mating connector molex 430250400 with 430300001 pins (20-24 AWG)

## 300 Watts

- Peak power 375W (5 sec)
- Remote current and voltage programming
- Current share in parallel operation
- Remote sense
- 5 Year warranty



| Parameter                        | Min          | Typical | Max      | Units   | Notes & Conditions  |
|----------------------------------|--------------|---------|----------|---------|---|
| Output voltage range             | 4.5          | 12      | 15       | V       | Manual adjustment   |
| Output current rating            |              |         | 25       | A       |   |
| Output power rating              |              |         | 300      | W       |   |
| Peak power rating                |              |         | 375      | W       | Max 5 seconds   |
| Initial voltage setting accuracy | -0.5         |         | 0.5      | %       | Factory set units   |
| Manual voltage adjust            |              | 0.954   |          | V/turn  | 11 turn potentiometer   |
| Load regulation                  | -100         |         | 100      | mV      | Measured at sense terminals   |
| Line regulation                  | -0.1         |         | 0.1      | % Vnom  | Measured at sense terminals   |
| Cross regulation                 | -0.2         |         | 0.2      | % Vnom  | Measured at sense terminals   |
| Minimum Load                     | 0            |         |          | W       |   |
| Temperature coefficient          | -0.02        |         | +0.02    | % /°C   |   |
| Noise and ripple                 |              |         | 1        | % Vnom  | 20MHz bandwidth pk-pk   |
| Transient response               |              |         | 2<br>100 | V<br>us | 25%-75% load transient at 0.5A/us. Recovery within 10% of Vset                  |
| Turn on rise time                | 1.5          |         | 3.5      | ms      | Monotonic 10%-90%   |
| Turn on overshoot                |              |         | 0.1      | % Vset  |   |
| Turn on delay                    |              | 600     | 750      | ms      | AC-Power good   |
|                                  |              | 15      | 20       | ms      | Enable to power good  |
| Current share accuracy           | -5           |         | +5       | %       | Error from ideal sharing current. Valid for loads > 20% of rating               |
| Open sense offset                |              |         | 2        | % Vnom  | Voltage offset between sense lines and output terminals when sense lines unused |
| Holdup voltage                   |              |         | 12       | V       |   |
| Isolation to ground              |              |         | 250      | V       | Each output terminal  |
| Overcurrent protection           | 105          | 115     | 125      | %Inom   |   |
| Reverse current protection       | -6           |         | 0        | %Inom   |   |
| Short circuit protection         |              | 125/3/2 |          | ms/%V   | Period/Duty cycle/Voltage Threshold (Measured at sense terminals)               |
| Overvoltage protection           |              | 18      |          | V       | Latching  |
| Over temperature protection      | 115          |         | 125      | °C      | Internally monitored  |
| Sense cable protection           | -1           |         | 2        | V       | Positive  |
|                                  |              |         | 1        | V       | Negative  |
| Power good threshold             |              | 90      |          | % Vset  | Low threshold only  |
| Current output signal            | 0            |         | 125      | %Rated  | I <sub>sig</sub> = 0.6 + I <sub>out</sub> / (IRTD * 1.25)                       |
| Current limit control            | 0            |         | 100      | %Rated  | I <sub>limit</sub> = (V <sub>ctrl</sub> - 0.6) * IRTD * 1.25                    |
| Remote voltage control           | 0            |         | 131.5    | % Vset  | V <sub>out</sub> = Vset * ((1.8 - V <sub>ctrl</sub> ) / 0.6)                    |
| Bias supply                      | 4.5          | 5       | 5.2      | V       | 10mA max  |
| Reliability                      |              |         | 1        | FPMH    | 40°C 80% load   |
| Size                             | 60 x 35 x 35 |         |          | mm      | LxWxH   |
| weight                           |              | 70      |          | g       |   |
| Wire size                        | 10           | 12      |          | AWG     |   |

# Nevo+600 Series module OPA3: 9-30V 300W

## 300 Watts

- Peak power 450W (5 sec)
- Remote current and voltage programming
- Current share in parallel operation
- Remote sense
- 5 Year warranty



| Parameter                        | Min          | Typical   | Max      | Units   | Notes & Conditions  |
|----------------------------------|--------------|-----------|----------|---------|---|
| Output voltage range             | 9            | 24        | 30       | V       | Manual adjustment   |
| Output current rating            |              |           | 15       | A       |   |
| Output power rating              |              |           | 300      | W       |   |
| Peak power rating                |              |           | 450      | W       | Max 5 seconds   |
| Initial voltage setting accuracy | -0.5         |           | 0.5      | %       | Factory set units   |
| Manual voltage adjust            |              | 1.909     |          | V/turn  | 11 turn potentiometer   |
| Load regulation                  | -150         |           | 150      | mV      | Measured at sense terminals   |
| Line regulation                  | -0.1         |           | 0.1      | % Vnom  | Measured at sense terminals   |
| Cross regulation                 | -0.2         |           | 0.2      | % Vnom  | Measured at sense terminals   |
| Minimum Load                     | 0            |           |          | W       |   |
| Temperature coefficient          | -0.02        |           | +0.02    | % /°C   |   |
| Noise and ripple                 |              |           | 1        | % Vnom  | 20MHz bandwidth pk-pk   |
| Transient response               |              |           | 3<br>100 | V<br>us | 25%-75% load transient at 0.25A/us. Recovery within 10% of Vset                 |
| Turn on rise time                | 1.5          |           | 3.5      | ms      | Monotonic 10%-90%   |
| Turn on overshoot                |              |           | 0.1      | % Vset  |   |
| Turn on delay                    |              | 600       | 750      | ms      | AC-Power good   |
|                                  |              | 15        | 20       | ms      | Enable to power good  |
| Current share accuracy           | -5           |           | +5       | %       | Error from ideal sharing current. Valid for loads > 20% of rating               |
| Open sense offset                |              |           | 2        | % Vnom  | Voltage offset between sense lines and output terminals when sense lines unused |
| Holdup voltage                   |              |           | 24       | V       |   |
| Isolation to ground              |              |           | 250      | V       | Each output terminal  |
| Overcurrent protection           | 105          | 115       | 125      | %Inom   |   |
| Reverse current protection       | -6           |           | 0        | %Inom   |   |
| Short circuit protection         |              | 125/3/3.5 |          | ms/%V   | Period/Duty cycle/Voltage Threshold (Measured at sense terminals)               |
| Overvoltage protection           |              | 36        |          | V       | Latching  |
| Over temperature protection      | 115          |           | 125      | °C      | Internally monitored  |
| Sense cable protection           | -1           |           | 2        | V       | Positive  |
|                                  |              |           | 1        | V       | Negative  |
| Power good threshold             |              | 90        |          | % Vset  | Low threshold only  |
| Current output signal            | 0            |           | 125      | %Rated  | I <sub>sig</sub> = 0.6 + I <sub>out</sub> / (IRTD * 1.25)                       |
| Current limit control            | 0            |           | 100      | %Rated  | I <sub>limit</sub> = (V <sub>ctrl</sub> - 0.6) * IRTD * 1.25                    |
| Remote voltage control           | 0            |           | 131.5    | % Vset  | V <sub>out</sub> = Vset ((1.8 - V <sub>ctrl</sub> ) / 0.6)                      |
| Bias supply                      | 4.5          | 5         | 5.2      | V       | 10mA max  |
| Reliability                      |              |           | 1        | FPMH    | 40°C 80% load   |
| Size                             | 60 x 35 x 35 |           |          | mm      | LxWxH   |
| weight                           |              | 70        |          | g       |   |
| Wire size                        | 16           | 14        | 10       | AWG     |   |