# **RHINO PSH-xx-480 Power Supplies** Installation Instructions

Input (AC)

Act

Voltage Sag Immunity

Vibration Acc. IEC 60068-2-6-3

Shock Acc. IEC 60068-2-27

Railway Applications Shock and Vibration

Environment

Approvals

Nominal Input Voltage

Nominal Input Current

Operational Input Voltage Range

Input Voltage Frequency Range

Inrush Current (115/230 VAC)

Standby Power Consumption

### READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

### **Safety Instructions and Warnings**

- Do not open the device!
- Before any installation or maintenance, ensure that the main switch is switched off and prevented from being switched on again.
- · The device must be installed and put into service by qualified personnel only.
- Never work on the device if power is applied.
- Risk of electric arcs and electrical shock, which can cause death, severe personal injury or substantial property damage.
- The unit must be connected to the mains supply in compliance with national regulations (e.g., VDE0100 and EN50178). All wire strands must be fastened in the terminal blocks. (Potential danger of contact with the case.)
- All input and output wires must be properly rated for the power supply and must be connected with the correct polarity (Fig. 3).
- The Power Supply wiring must be sufficiently fused.
- Sufficient cooling must be ensured (Fig. 2).
- Do not introduce any objects into the device.
- · The output voltage adjustment potentiometer may only be actuated using an insulated screwdriver.
- Keep away from fire and water.
- The internal fuse is not accessible. If this internal fuse has blown, the power supply has an internal defect and, for safety reasons, must be replaced.
- This device is designed for use in a clean, dry environment.
- The device must be mounted in an enclosure in the end application and must not be accessible in operation.

# Installation Instructions

- The device can be mounted onto 35mm DIN rails, compliant with the specifications of DIN EN 50022. Observe the requirements for ventilation space above and below the device (Fig. 2).
- The standard mounting orientation is with input terminals at the bottom.
- Alternative side-mounting for flat panels: The case offers the potentially useful feature to fix the DIN-rail clip to the side wall to mount inside flat panels.

# Recycling

 The device contains elements that are suitable for recycling. and components that need special disposal. You are therefore requested to make sure that the device will be recycled at the end of its service life.

Lass A, U     Lass A, U       Circuit Breaker Rating / Characteristic     6-16 A/B, C (EC); 20 A/B, C (USA)       Max. Output Power     480W       Output Voltage     490W       Max. Output Current / Max. Output Current / Max     480W       Output Voltage Adjustment Range     23 - 28 V     475 - 56 V       Typical Efficiency (230 VAC)     95%     95%       Digut Voltage Adjustment Range     23 - 28 V     475 - 56 V       Typical Efficiency (230 VAC)     95%     95%       Digut Voltage Adjustment Range     23 - 528 V     475 - 56 V       Output Power Derating - Imperature     2%/K above 60°C, refer to Fig. 5     010 mVp-p max.       Output Power Derating - Imput Voltage     3%/V belw 90 VAC, refer to Fig. 5     010 mVp-p max.       Output Overoidage Protection (OVP) (Mote 2)     32 - 35V     56 - 60V       Start-up line     20 m ms min.     20 mVp-p max.     00 mVp-p max.       Output Overoidage Protection (OVP) (Mote 2)     32 - 35V     56 - 60V       Power Back Immunity (Mote 3)     - 00 P level     105 % do to in ominal       Operation     Power Adverous Operation     105 % do tout nominal       Operation
Uncun tensen raung / Untracteristic     b-16 A /B, C (IEC); 20 A /B, C (USA)       Max. Output Power     480W       Max. Output Power     480W       Aka. Output Voitage     24V     48V       Max. Output Current / Max. Output Current 4s (Boost power' which facilitates the adrivation of pipotal Efficiency (230 VAC)     95%     95%       Output Voitage Adjustment Range     23.5–28 V     47.5–56 V     95%       Output Voitage Adjustment Range     23.5–28 V     47.5–56 V     95%       Output Voitage Adjustment Range     23.5–28 V     47.5–56 V     95%       Output Power Derating - Imput Variation (Dup Of Wore Straing - Temperature 20 ms min.     95%     95%     95%       Solar-up time     20 ms min.     20 ms min.     20 mVp-p max.     200 mVp-p max.       Output Overoltage Protection (OVP) (Note 2)     32-33V     56-60V     Power Beak Immunity (Note 3)     - OVP level       Output Cycle (for peak and c mode) (Note 4)     - OVP level     100% of four nominal 155% of lout nominal     105%     6-0V       Dr C ON     Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
Mark     Output Voltage     400W       Output Voltage     24V     48V       Max. Output Current / Max. Output Current 4s     20A     10A       Stepper motors, solenoids or actuators)     20A     10A       Output Voltag Adjustment Range     23.5–28 V     47.5–56 V       Typical Efficiency (230 VAC)     95%     95%       Output Dower Derating - Imput Variation     (10–90 %) 0.5 % max.     0.0 max.       Output Power Derating - Imput Voltage     3%.V below 90 VAC, refer to Fig. 5     0.0 J/W fore Derating - Imput Voltage       Biple and Noise (20MHz bandwidth) (Nole 1)     100 mVp-p max.     200 mVp-p max.     200 mVp-p max.       Output Overvoltage Protection (OVP) (Nole 2)     28-35V     56-60V     56-60V       Power Back Immunity (Nole 3)     100% of lout nominal     105% of lout nominal     105% of lout nominal       Operation     Pake Power Operation     105% of lout nominal     105% of lout nominal       Der Cycle (for pask and cr mode) (Nole 4)     Nom al Operation / Off Preiod     105 %       Short Circuit Protection     Switch off are 4s delay, automatic restart after switch off or pask and cc operation timer reset)       Short Circuit Protection     Switch off a
Theory     Tool vi       View of up (Current / Max. Output Current 4 (Boost power' which facilitates the activation of Subper notions, solenoids or actuators)     10A       Output Voltage Adjustment Range     23.5–28 V     47.5–56 V       Output Voltage Adjustment Range     23.5–28 V     47.5–56 V       Typical Efficiency (230 VAC)     95%     95%       Regulation     Input Variation Load Variation     0.1 % max. (10–90 %) 0.2 % max.     95%       Output Power Derating - Imput Voltage     3%/V below 90 VAC, refer to Fig. 4     10A       Start-up time     2%/K above 60°C, refer to Fig. 4     10A       Output Power Derating - Imput Voltage     3%/V below 90 VAC, refer to Fig. 4     10A       Output Power Derating - Imput Voltage     3%/V below 90 VAC, refer to Fig. 4     10A       Output Voltage Protecting (OVP) (Note 2)     20 mVp-p max.     200 mVp-p max.     00 mVp-p max.       Output Voltage Protecting (OVP) (Note 2)     <-0VP level
Output Number     Prov       Wax     Dutp (Uurnet) / Max. Output Current 4s, (Phoots power' which facilitates the activation of Dutput Voltage Adjustment Range     20A     10A       Output Voltage Adjustment Range     23.5–28 V     47.5–56 V     95%       Regulation     Input Voltage Adjustment Range     23.5–28 V     47.5–56 V     95%       Regulation     Input Voltage Adjustment Range     23.5–28 V     47.5–56 V     95%       Output Power Derating - Temperature     2%/K above 60°C, refer to Fig. 5     0.0000 VAC, refer to Fig. 4     0.0000 VAC, refer to Fig. 4       Hold-upt time     20 ms min.     53.7     56–60V     700 ms min.       Start-up time     2s max.     Figue and Noise (200Hr/z bandwidth) (Note 1)     100 m/p-p max.     200 mVp-p max.     200 mVp-p max.       Output Cover objection (OVP) (Note 2)     32–35V     56–60V     56–60V     56       Power Back Immunity (Note 3)     < OVP level
The solution of the solution of the solution of stepper motions, solenoids or actuators) 20A 10A   Stepper motions, solenoids or actuators) 235–28 V 47.5–56 V   Typical Efficiency (230 VAC) 95% 95%   Regulation Imply Variation 0.1 % max.   Output Voltage Adjustment Range 23.5–28 V 47.5–56 V   Output Power Deating - Imput Voltage 95%. 95%.   Output Power Deating - Imput Voltage 2%/K above 60°C, refer to Fig. 5. 0.00   Output Power Deating - Imput Voltage 2% M below 60°C, refer to Fig. 4. 10A   Hold-up time 20 ms min. 20 ms min. 200 mVp-p max.   Start-up time 20 ms min. 200 mVp-p max. 200 mVp-p max.   Output Overvoltage Protection (OVP) (Note 2) 32–35V 56–60V   Power Back Immunity (Note 3) < OVP level
Output Voltage Adjustment Range     23.5–28 V     47.5–56 V       Typical Efficiency (230 VAC)     95%     95%       Regulation     Input Variation Load Variation     0.1 % max.     0.1 % max.       Output Power Derating - Temperature     2%/K above 60°C, refer to Fig. 5     0.0 Junt Power Derating - Input Voltage     3%/V below 90 VAC, refer to Fig. 4       Hold-up time     20 ms min.     23 max.     200 mVp-p max.     200 mVp-p max.       Output Overvoltage Protection (OVP) (Note 2)     32-35V     56–60V     56–60V       Power Back Immunity (Note 1)     100% of lout nominal     105% of lout nominal     105% of lout nominal       Operation     Peak Power Operation Constant Current (CC)     155% of lout nominal     105% of lout nominal       Duty Cycle (for peak and cc mode) (Note 4)     > 105 %         Normal Operation     Normal operation     Normal Above and cc operation timer reset)        Normal Operation     OVE     21.5 V Vp.     OVF > 45 Vp.        DC OK Signal     Threshold for Vout     OVE > 22.5 V Vp.     OVF > 45 Vp.     OFE < 430 Vp.
Typical Efficiency (230 VAC)     95%     95%       Regulation     Input Variation     0.1 % max.     (10–90 %) 0.5 % max.     0.1 % max.       Output Power Derating - Temperature     2%/K above 60°C, refer to Fig. 4
Regulation     Input Variation     0.1 % max.       Output Power Derating - Temperature     2%/K above 60°C, refer to Fig. 5       Output Power Derating - Input Voltage     3%/K below 90 VAC, refer to Fig. 4       Hold-up time     2s max.       Start-up time     2s max.       Ripple and Noise (20MHz bandwidth) (Nole 1)     100 mVp-p max.     200 mVp-p max.       Output Power Derating     OVP (Nole 2)     32–35V       Start-up time     2s max.     200 mVp-p max.       Output Overvoltage Protection (OVP) (Nole 2)     32–35V     56–60V       Power Back Immunity (Nole 3)     < OVP level
Loss valuation     (10-92 vol. 0.5 valuation)       Output Power Derating - Emperature     2%/K above 600°C; refer to Fig. 5       Output Tower Derating - Imput Voltage     3%/V below 90 VAC, refer to Fig. 5       Start-up time     20 ms min.       Start-up time     2s max.       Ripple and Noise (20MHz bandwidth) (Note 1)     32-35V       Output Overvoltage Protection (0VP) (Note 2)     32-35V       Power Back Immunity (Note 3)     < 0VP level
Output Power Derating - Input Voltage     3%/V below 90 VAC, refer to Fig. 4       Hold-up time     20 ms min.       Start-up time     20 ms min.       Start-up time     20 ms min.       Biple and Noise (20MHz bandwidth) (Nole 1)     100 mVp-p max.     200 mVp-p max.       Output Overvoltage Protection (OVP) (Note 2)     32–35V     56–60V       Power Back Immunity (Note 3)     < OVP level
Index torms     Index torms       Start-up time     20 ms min.       Start-up time     2s max.       Ripple and Noise (20MHz bandwidth) (Note 1)     100 mVp-p max.     200 mVp-p max.       Output Overvoltage Protection (OVP) (Note 2)     32–35V     56–60V       Power Back Immunity (Note 3)     < OVP level
Start-up time     2s max.     200 mVp-p max.     200 mVp-p max.       Ripple and Noise (20MHz bandwidth) (Nole 1)     100 mVp-p max.     200 mVp-p max.     56–60V       Power Back Immunity (Note 2)     32–35V     56–60V     56–60V       Power Back Immunity (Note 3)     < OVP level
Ripple and Noise (20MHz bandwidth) (Note 1)   100 mVp-p max.   200 mVp-p max.     Output Overvoltage Protection (OVP) (Note 2)   32–35V   56–60V     Power Back Immunity (Note 3)   < OVP level
Output Overvoltage Protection (OVP) (Note 2)     32–35V     56–60V       Power Back Immunity Operation     Nominal Operation Peak Power Operation Constant Current (CC)     100% of lout nominal 105–150% of lout nominal 105–150% of lout nominal 05–150% of lout nominal       Duty Cycle (for peak and cc mode) (Note 4) Threshold     > 105 %     > 105 %       Normal Operation / Diff Period     > 105 %     > 105 %       Short Circuit Protection     Switch off after 4s delay, automatic restart (Note 4) DC OK Signal     > 105 %       DC OK Signal     Threshold for Vout     OF: < 21.5 V tp.
Power Back Immunity     (Note 3)     < OVP level       Operation     Nominal Operation Peak Power Operation Constant Current (CC)     100% of lout nominal 105% of lout nominal 105% of lout nominal       Duty Cycle (for peak and cc mode) (Note 4) Threshold     > 105 % C cor Peak Operation Timer Normal Operation / Off Period     > 105 % Switch off at the switch off or peak and cc operation timer reset)       Short Circuit Protection     Switch off atter 4s delay, automatic restart (Note 4)     > 01%       DC OK Signal     DC OFF     Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED DC OFF     DC OFF       DC ON     Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
Operation     Nominal Operation Constant Current (CC)     100% of lout nominal 105% of lout nominal 105% of lout nominal       Duty Cycle (for peak and cc mode) (Note 4) Threshold     > 105 % of lout nominal     >       CC or Peak Operation Timer Normal Operation / Off Period     > 105 %     >       Short Circuit Protection     Switch off after 4s delay, automatic restart (Note 4)     >       DC OK Signal     DC OFF     Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
Duty Cycle (for peak and cc mode) (Note 4) Threshold   > 105 %     CC or Peak Operation Timer Normal Operation / Off Period   > 105 %     Short Circuit Protection   Switch off after 4s delay, automatic restart (Note 4)     DC OK Signal   Threshold for Vout   ON: > 450' typ.     DC OK Signal   DC OFF   Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
Interstold   > 105 %     CC or Peak Operation Timer   4s max, (switch off)     Normal Operation / Off Period   Switch off after 4s delay, automatic restart (Note 4)     Short Circuit Protection   Switch off after 4s delay, automatic restart (Note 4)     DC OK Signal   Threshold for Vout   OF: > 22.5 V typ.   OF: > 45W typ.     DC OK Signal   DC ON   Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
Normal Operation / UF Pridd   -SiteX. (Switch for)     Normal Operation / UF Pridd   -SiteX (Switch for)     Short Circuit Protection   Switch off after 4s delay, automatic restart (Note 4)     DC OK Signal   Threshold for Vout   OF: > 22.5 V typ.   ON: > 45V typ.     DC OK Signal   DC OFF   Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
Short Circuit Protection     Switch off after 4s delay, automatic restart (Note 4)       DC 0K Signal     Threshold for Vout     OK: > 22.5 V typ.     ON: > 45V typ.       DC 0K Signal     DC 0N     Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
DC OK Signal     Threshold for Vout     ON: > 22.5 V typ. OFF: < 21.5 V typ.     ON: > 45V typ. OFF: < 43V typ.       DC ON     Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
DC OK Signal     DF: < 21.5 V typ.     OFF: < 43V typ.       DC ON     Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
DC UN     Helay contact closed, max. 1A, < 100m0hm, also indicated by green LED       DC OFF     Relay contact closed, max. 1A, < 100m0hm, also indicated by green LED
DC OFF     Relay contact open, max 30V       Reneral Data     Weight     1018g [35.91 oz]       Laskage Current (max.)     2.3 mA     Network Configuration     TN-S, TN-C, TT, IT       Enclosure Material (Chassis/Cover)     Aluminum / Stainless Steel     Cooling     Over Temperature Protection       Over Temperature Protection     Switch off at over temperature     Input/Output 4250VDC     Input/Chassis 1500VDC       Isolation Voltage     Input/Chassis 1500VDC     Output/Chassis 750VDC     Input/Chassis 1.5 mm       Creepage Clearance     Input/Chassis 1.5 mm     Output/Chassis 1.5 mm     Output/Chassis 0.4 mm       Contact Rating     Open: 15V; leakage current max 100µA     Close: 0.3 V; max drop at 15mA     Safety / Environmental       Surrounding Ambient Temperature Range     -40°C to +70°C [-40°F to +158°F]     Temperature 2.40°F to +185°F]       Storage Temperature     -40°C to -48°C [-40°F to +185°F]     Temperature 2.40°C to -48°C [-40°F to +185°F]       Maximum Altitude     2000m     Safety (worknew rules as witchear and controlnear UL 60950-1     CSA 22.2 No 60950-1-0; File E1982/98
Jeneral Jata       Weight     1018g [35.91 oz]       Lakage Current (max.)     2.3 mA       Network Configuration     TN-S, TN-C, TT, IT       Enclosure Material (Chassis/Cover)     Aluminum / Stainless Steel       Cooling     Convection cooling, no internal fan       Over Temperature Protection     Switch off at over temperature       Input/Output 4250VDC     Input/Output 4250VDC       Isolation Voltage     Unput/Chassis T50VDC       Unput/Chassis 1.5 mm     Unput/Chassis 1.5 mm       Contact Rating     Oper: 15V; leakage current max 100µA       Coloser 1.9V, Temperature Range     -40°C to +70°C [-40°F to +158°F]       Temperature Coefficient     0.02 %/K       Humidity     5–95%, non-condensing       Storage Temperature     -40°C to +85°C [-40°F to +185°F]       Maximum Altitude     2000m       Storage Temperature     -40°C to +85°C [-40°F to +185°F]       Store uno
verugin     1018g (35.91 0z)       Leakage Current (max.)     2.3 mA       Network Configuration     TN-S, TN-C, TT, IT       Enclosure Material (Chassis/Cover)     Aluminum / Stainless Steel       Cooling     Convection cooling, no internal fan       Over Temperature Protection     Switch off at over temperature       Input/Output 4250/UC     Input/Output 4250/UC       Isolation Voltage     Input/Chassis 1500/UC       Uput/Chassis 1500/UC     Output/Chassis 750/UC       Creepage Clearance     Input/Chassis 4mm       Output/Chassis 15.50/UC     Output/Chassis 15.50/UC       Contact Rating     Oper. 15V; leakage current max 100µA       Contact Rating     Oper. 15V; leakage current max 100µA       Surrounding Ambient Temperature Range     -40°C to +70°C [-40°F to +158°F]       Temperature Coefficient     0.02 %/K       Humidity     5–95%, non-condensing       Storage Temperature     -40°C to +85°C [-40°F to +185°F]       Maximur Altitude     2000m       Safety X 2006000-1-03; File E198298     Safety Nurvitans switchear and controlnear UII 508. Eile E197502
Learage Current (TIRX.) L.3.11/4   Network Configuration TN-S, TN-C, TT, IT   Enclosure Material (Chassis/Cover) Aluminum / Stainless Steel   Cooling Convection cooling, no internal fan   Over Temperature Protection Switch off at over temperature   Input/Output 4250/DC Input/Output 4250/DC   Isolation Voltage Input/Ochassis 1500/DC   Output/Chassis 750/DC Output/Chassis 750/DC   Input/Output 8mm Input/Ochassis 4mm   Output/Chassis 4.5 Tsm Output/Chassis 4.5 mm   Creepage Clearance Input/Ochassis 4.5 mm   Output/Chassis 4.5 mm Output/Chassis 4.5 mm   Contact Rating Oper: 15V; leakage current max 100µA   Contact Rating Oper: 15V; leakage current max 100µA   Safety / Environmental Surrounding Ambient Temperature Bange   Surrounding Ambient Temperature Bange -40°C to +70°C (-40°F to +158°F)   Temperature Coefficient 0.02 %/K   Humidity 5–95%, non-condensing   Storage Temperature -40°C to +85°C [-40°F to +185°F]   Maximur Altitude 2000m   Information technology equipment IEC/EN 60950-1, UL 60950-1   CSAfeV, Spandards Safety Nuroutbase switchear and controlnear UL 508. File E198298
Intervent Hormsportaunt     Intro-, IT, IT       Enclosure Material (Chassis/Cover)     Aluminum / Stainless Steel       Cooling     Convection cooling, no internal fan       Over Temperature Protection     Switch off at over temperature       Input/Output 4250VDC     Input/Output 4250VDC       Input/Output 4250VDC     Input/Output 4250VDC       Input/Output 4250VDC     Input/Output 4250VDC       Correspage Clearance     Input/Output 8mm       Unput/Chassis 4mm     Output/Chassis 4mm       Output/Chassis 150     Open: 15V; leakage current max 100µA       Contact Rating     Open: 15V; leakage current max 100µA       Close: 0.3 V; max drop at 15mA     Safety / Environmental       Surrounding Ambient Temperature Range     -40°C to +70°C [-40°F to +158°F]       Temperature Coefficient     0.02 %/K       Humidity     5-95%, non-condensing       Storage Temperature     -40°C to +85°C [-40°F to +185°F]       Maximum Altitude     2000m       Information technology equipment IEC/EN 60950-1, UL 60950-1       CSAfeV, Standards     Safety Nandards
Construct (valuate (valuate (valuate (valuate)))     Prominantly (valuate) (valuate)       Coloning     Convection cooling, no internal fan       Over Temperature Protection     Switch off at over temperature       Input/Output 4250VDC     Input/Output 4250VDC       Isolation Voltage     Input/Output 8550VDC       Output/Chassis 750VDC     Output/Chassis 750VDC       Creepage Clearance     Input/Output 8750VDC       Input/Chassis 1.5 mm     Output/Chassis 1.5 mm       Contact Rating     Oper: 15Y, leakage current max 100µA       Contact Rating     Oper: 15Y, leakage current max 100µA       Contact Rating     -40°C to +70°C (-40°F to +158°F)       Temperature Coefficient     0.02 %/K       Humidity     5–95%, non-condensing       Storage Temperature     -40°C to -48°C (-40°F to +185°F)       Maximum Altitude     20000m       Safety / Stordards     Safety woltane woltane and notartoleard III. 508. File E197502
Over Temperature Protection     Switch off at over temperature       Over Temperature Protection     Switch off at over temperature       Input/Output 4250VDC     Input/Output 4250VDC       Input/Chassis 1500VDC     Utput/Chassis 750VDC       Creepage Clearance     Input/Output 8750VDC       Input/Otassis 15.5 mm     Output/Chassis 1.5 mm       Contact Rating     Oper: 15%/ leakage current max 100µA       Contact Rating     Oper: 15%/ leakage current max 100µA       Close: 0.3 V, max drop at 15mA     Safety / Environmental       Surrounding Ambient Temperature Range     -40°C to +70°C [-40°F to +158°F]       Temperature Coefficient     0.02 %/K       Humidity     5–95%, non-condensing       Storage Temperature     -40°C to +85°C [-40°F to +185°F]       Maximum Altitude     2000m       Safety / Stordards     Safety workprear and controlnear UL 60950-1, UL 60950-1
Input/Output     Association support       Isolation Voltage     Input/Output     Association Voltage       Output/Chassis 1500VDC     Input/Output     Input/Output     Association Voltage       Creepage Clearance     Input/Chassis 4700VDC     Input/Output     Association Voltage       Remote On/Off     The unit can be controlled by external relay contact or open collector signal.     Open: 15V; leakage current max 100µA     Close: 0.3 V; max drop at 15mA       Contact Rating     Open: 15V; leakage current max 100µA     Close: 0.3 V; max drop at 15mA     Safety / Environmental       Surrounding Ambient Temperature Range     -40°C to +70°C (-40°F to +158°F)     Temperature Coefficient     0.02 %/K       Humidity     5-95%, non-condensing     Storage Temperature     -40°C to +48°C (-40°F to +185°F)       Maximum Altitude     2000m     Information technology equipment IEC/EN 60950-1, UL 60950-1       CA 2.2 No 60950-1-03, File F198238     Safety Vandrards     Safety Vandrards
Isolation Voltage     Input/Chassis 1500VDC       Output/Chassis 750VDC     Output/Chassis 750VDC       Creepage Clearance     Input/Chassis 750VDC       Input/Chassis 750VDC     Input/Chassis 750VDC       Contact Rating     Open: 15V; leakage current max 100µA       Contact Rating     Open: 15V; leakage current max 100µA       Contact Rating     Open: 15V; leakage current max 100µA       Contact Rating     -40°C to +70°C [-40°F to +158°F]       Surrounding Ambient Temperature Range     -40°C to +70°C [-40°F to +158°F]       Temperature Coefficient     0.02 %/K       Humidity     5–95%, non-condensing       Storage Temperature     -40°C to +85°C [-40°F to +185°F]       Maximum Altitude     2000m       Information technology equipment IEC/EN 60950-1, UL 60950-1       CSA 22.2 No 60950-1-03, File F198298       Safety Xandrards     Safety Nany and and regregard controlnear UL 508. File F197502
Creepage Clearance     Input/Chassis 4mm       Input/Chassis 1.5 mm     Output/Chassis 1.5 mm       Remote On/Off     The unit can be controlled by external relay contact or open collector signal.       Contact Rating     Open: 15V; leakage current max 100µA       Close: 0.3 V; max drop at 15mA     Close: 0.3 V; max drop at 15mA       Safety / Environmental     -40°C to +70°C (-40°F to +158°F]       Temperature Coefficient     0.02 %/K       Humidity     5–95%, non-condensing       Storage Temperature     -40°C to +85°C (-40°F to +185°F]       Maximum Altitude     20000m       Safety / Storage: Sologio-1-03; File E198298     Safety Nurolang and totoplage and not
Remote On/Off     The unit can be controlled by external relay contact or open collector signal.       Contact Rating     Open: 15% leakage current max 100µA Close: 0.3 V; max drop at 15mA       Safety / Environmental
Contact Rating     Open: 15V; leakage current max 100µA       Close: 0.3 V; max drop at 15mA     Close: 0.3 V; max drop at 15mA       Safety / Environmental     Surrounding Ambient Temperature Range     -40°C to +70°C [-40°F to +158°F]       Temperature Coefficient     0.02 %/K     -40°C to +85°C [-40°F to +185°F]       Humidity     5-95%, non-condensing     -50°C [-40°F to +185°F]       Storage Temperature     -40°C to +85°C [-40°F to +185°F]     -40°C to +85°C [-40°F to +185°F]       Maximum Altitude     2000m     -60°C to +85°C [-40°F to +185°F]       Safety Standards     Safety with writeras writerear and controlnager [III 508, File F197502
Safety / Environmental     Close: U.3 V; max drop at 15mA       Safety / Environmental     -40°C to +70°C [-40°F to +158°F]       Temperature Coefficient     0.02 %/K       Humidity     5–95%, non-condensing       Storage Temperature     -40°C to +85°C [-40°F to +185°F]       Maximum Altitude     2000m       Information technology equipment IEC/EN 60950-1, UL 60950-1       CSA 22.2 No 60950-1-03, File E198298       Safety Standards
Jarrey / Liverummentar       Surrounding Ambient Temperature Range       -40°C to +70°C [-40°F to +158°F]       Temperature Coefficient       0.02 %/K       Humidity       5–95%, non-condensing       Storage Temperature       -40°C to +85°C [-40°F to +185°F]       Maximum Altitude       2000m       Information technology equipment IEC/EN 60950-1, UL 60950-1       CSA 22.2 No 60950-1-03, File E198298       Safety Standards
Concorning removal reinperature interget     Provide of the Provide Provid
Surger Temperature     Control       Humidity     5–95%, non-condensing       Storage Temperature     -40°C to +85°C [-40°F to +185°F]       Maximum Altitude     2000m       Information technology equipment IEC/EN 60950-1, UL 60950-1       CSA 22.2 No 60950-1-03, File E198298       Safely Standards
Storage Temperature     -40°C to +85°C [-40°F to +185°F]       Maximum Attitude     2000m       Information technology equipment IEC/EN 60950-1, UL 60950-1       CSA 22.2 No 60950-1-03, File E198298       Safely Standards       Safely Standards
Maximum Altitude 2000m Information technology equipment IEC/EN 60950-1, UL 60950-1 CSA 22.2 No 60950-1-03, File E198298 Safety Vandards Ele E197502
Information technology equipment IEC/EN 60950-1, UL 60950-1 CSA 22.2 No 60950-1-03, File E198298 Safety Vandards Safety Iwa valtaas switchaar and controlnaar III. 508. File E197502
Process Control Equipment Haz Loc, File E502478 ATEX (©) 13 G Fx e: n C III C 14 Grow
MTBF (acc. to IEC 61709 at 25°C) > 1,000,000 hrs
Protection Class Class I
Degree of Protection IP20
Electromagnetic compatibility (EMC)
Emissions EN 61000-6-3, EN 61204-3
Conducted RI Suppression On Input EN 55032, EN 55011 class B,
Radiated RI Suppression EN 55032, EN 55011 class B,
Immunity EN 61000-6-2, EN 61204-3
Maliway Applications Signaling Apparatus EN 50121-4
Raliway Applications Rolling Stock Applaiatus Ein 50121-3-2
hallway Applicators normal stock Applataus EN 30121-3-2 Electrostatic Discharge (ESD) IE/C/EN 61000-4-2 4 kV/8 kV, criteria A Bediated PE Field Immunity IE/C/EN 61000-4-2 10 V/m criteria A
Halway Applicators Rolling Stock Applataus EN 30121-3-2 Electrostatic Discharge (ESD) Elec/EN 61000-4-2 4 kV/8 kV, criteria A Radiated RF Field Immunity IEC/EN 61000-4-3 10 V/m, criteria A Electrical Fast Transient / Burst Immunity IEC/EN 61000-4-4 2 kV, criteria B
Natively Applications Rolling Stock Applataus     EN 50121-3-2       Electrostatic Discharge (ESD)     IEC/EN 61000-4-2     4 kV/8 kV, criteria A       Radiated RF Field Immunity     IEC/EN 61000-4-3     10 V/m, criteria A       Electrical Fast Transient / Burst Immunity     IEC/EN 61000-4-4     2 kV, criteria B       Sturge Immunity     IEC/EN 61000-4-4     1 kV/2 kV     criteria B
Natively Applications Rolling Stock Applataus EN 50121-3-2   Electrostatic Discharge (ESD) IEC/EN 61000-4-2 4 kV/8 kV, criteria A   Radiated RF Field Immunity IEC/EN 61000-4-3 10 V/m, criteria A   Electrical Fast Transient / Burst Immunity IEC/EN 61000-4-4 2 kV, criteria B   Surge Immunity IEC/EN 61000-4-5 1 kV/2 kV, criteria B   Immunity IEC/EN 61000-4-6 10 V, criteria A
Native     Applications notining stock Applaatus     Effects 501 E1-3-2     4 KV/8 KV, criteria A       Electorstatic Discharge (ESD)     IEC/EN 61000-4-2     4 KV/8 KV, criteria A       Radiated RF Field Immunity     IEC/EN 61000-4-3     10 V/m, criteria A       Electorstatic Discharge (ESD)     IEC/EN 61000-4-4     2 KV, criteria A       Electorstatic Discharge (ESD)     IEC/EN 61000-4-5     1 KV/2 KV, criteria B       Surge Immunity     IEC/EN 61000-4-5     1 KV/2 KV, criteria B       Immunity Conducted RF Disturbances     IEC/EN 61000-4-6     10 V, criteria A       Power Frequency Field Immunity     IEC/EN 61000-4-8     30 A/m, criteria A

SEMI F47

CE

According EN 61373

3 axis, 25 g half sine, 11ms

В

Scheme

230VAC, criteria B/C

(VL)<sub>US</sub>

UL508

3 axis, 2 g sine sweep, 10-55 Hz, 11 oct/min

**Technical Specifications** 

4.8/3.8 W (115/230 VAC)

PSH-48-480

PSH-24-480

100-240 VAC 5.8–2.5 A

85-264 VA0

45-65 Hz

15/30 A

#### Notes for Technical Specifications Table:

- 1. Output voltage can be adjusted as indicated. However, output power has to be maintained at nominal value. This means the output nominal current has to be reduced in accordance with the increase of output voltage
- 2. In case of an internal error, a second voltage regulation loop keeps the output voltage at a safe level, and the power supply turns off and restarts after 10 seconds
- 3. When external voltage is supplied above set output voltage and below OVP threshold, the power supply will function normally without switch off or destruction, even if external voltage is applied continuously.
- 4. In case of overload or short circuit, the unit switches the output voltage off after 4 seconds and tries to restart every 10 seconds.



Identi	fication of Features (Fig.1)
1	Input Terminal L
2	Input Terminal N
3	Input Terminal <b>GND</b>
4	Output Voltage adjustment potentiometer
5	DC ON LED
6/7	DC OK Contact
8–10	Remote On/Off
11	Output Connection Terminal –
12	Output Connection Terminal –
13	Output Connection Terminal +
14	Output Connection Terminal +



Fig. 3

OUTPUT

F

6

INPUT

÷ (÷)

D

в



Wiring Specifications (see Fig. 3)			
А	Wire Size, Output	12–10 AWG	
В	Wire Size, Input	18–10 AWG	
С	Wire Size, Signal	30–16 AWG	
D	Strip Length, Input/Output	10mm [0.39 in]	
E	Strip Length, Signal	5mm [0.20 in]	
F	Tightening Torque, Input/Output	0.7 N·m [6.2 lb·in]	
G	Tightening Torque, Signal	0.2 N·m [1.8 lb·in]	

FOR TECHNICAL ASSISTANCE CALL 770-844-4200

RHINO PSH-xx-480 Power Supplies





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