



Pegasus P1800 Range

1800W 19" rack 3U power supply for general purpose



Specification Summary

DC High Voltage Power Supplies suitable for laboratory and industrial use. Standard remote control is by analogue signals. Should other controls be preferred please discuss this with our technical staff. Available in a standard 19-inch rack. Reduced weight and ease of serviceability is ensured, as the supplies are air insulated below 20kV.

The option of grid and filament outputs is available, please contact the factory for more information.

Output specifications

Model no.	Air			Encapsulated					
	P1800/10	P1800/20	P1800/30	P1800/40	P1800/50	P1800/70	P1800/90	P1800/100	P1800/120
Output voltage (kV)	10	20	30	40	50	70	90	100	120
Output current (mA)	180	90	60	45	36	26	20	18	15

Other output specifications

Output polarity	Negative or positive. Please specify.
Load regulation	Not more than 100ppm of maximum rated output voltage for 10% to maximum output current change
Line regulation	Not more than 100ppm of maximum rated output voltage for $\pm 10\%$ input line change
Ripple	0.1% peak to peak at inverter frequency
Stability after ½ hour settling period	Not more than 0.04% per hour Not more than 0.05% per 8 hours
Temperature coefficient (0 to 50 °C)	Typically not more than 100ppm of maximum output per °C

Capacitor Charging Option:

The Pegasus range can be adapted to suit capacitor charging applications at low to moderate PRF.

Input specifications

AC input voltage range	230VAC (198 - 264VAC)
Input frequency	45 - 60Hz
Power factor	Greater than 0.95

Optional outputs

Isolated grid output available up to 2000V at 10mA
Isolated filament available up to 10V at 10A

Protection

- A trip occurs after excessive sparking or the occurrence of an error. The counter in the circuit limits the spark rate.
- Current limit provides overload and short circuit protection.
- Primary over-current protection is provided by the inverter circuits.



Control Interface

Front panel:



LED legend	Description
MAINS	Lamp for displaying mains power on
Circuit breaker	MCB 230VAC, 20A
HV ENABLE	Enable high voltage output
HV ON	RED = ON GREEN = OFF
CONST MA	Constant current
CONST HV	Constant high voltage
CONTACTOR	Mains contactor indication
SUM ERROR	GREEN = SYSTEM OK RED = FAULTY
FAN 1	Fan indicator
FAN 2	Fan indicator
FAN 3	Fan indicator
PFC1 IOG	PFC inverter output good status
PFC2 IOG	PFC inverter output good status
PFC1 EN	PFC downstream enable status
PEC2 EN	PFC downstream enable status
INV1 OC	Inverter over current
INV2 OC	Inverter over current
EM. STOP	Interlock input 1 status. Customer defined
DOOR	Interlock input 2 status. Customer defined
THERMAL 1	Heatsink over-temperature indication
THERMAL 2	Heatsink over-temperature indication
LVPSU	Low voltage power supplies OK

Back panel:



1	Harting connector/D-Sub connector*	Signal display and remote control
2	HV output	Supplied with screened output cable
3	M6 earth bonding	Internally connected to the incoming mains earth
4	Mains input	Neutrik NAC3FCA power inlet

*The 40 way Harting connector can be replaced by a 37 way D-Sub connector. Please specify when ordering.

Remote control interface (optional)

The Pegasus P1800 power supplies can be controlled by connecting an external control interface to the Harting connector or the D-Sub connector. Genvolt can also supply specially-designed control panels for customer requirements.

Control panel:



This control panel is standard 19" 4U rack that has similar function as the control panel for Pegasus P600/900 power supplies.

Main function	Description
HV monitor	Digital display for output voltage
mA monitor	Digital display for output current
HV demand setting	Input demand voltage by adjusting the potentiometer
mA demand setting	Input demand current by adjusting the potentiometer
Key switch	Enables HV output
HV ON/OFF switch	Turning HV on or off
HV On report	LED indicates when HV is enabled
Remote Status Report	LED indicates local/remote control
Contactor	An interlock allows HV Enable
Active	LED indicates when there is a spark event
Reset	The power supply can only be restarted when the reset button is pressed after sparking

Console box:



For remote control LED signals, please refer to the front panel and Harting connector signals that stated above.



Funtion	Description
HV monitor	Digital display for output voltage
mA monitor	Digital display for output current
HV command	Digital display for customer demand voltage
mA command	Digital display for customer demand current
Voltage setting	0-10V = 0 to full voltage - voltage programming
Current setting	0-10V = 0 to full current - current programming
Switches	Control input functions

Please specify RS232 or IEEE 488 requirements when ordering.

40 way Harting connector:



37 way D connector:



Environmental requirements

Operating temperature	0 to 35°C
Storage temperature	0 to 60°C
Relative humidity	Operating at 30% to 80%. Do not store the unit at above 95% humidity.

Mechanical specifications

Weight	Approx. 35kg for 120kV. Depends on output voltage.
Dimensions	Standard 19" format chassis 3U high, 580mm deep excluding such back panel furniture as connectors, earth stud etc.
Power input connector	Neutrik NAC3FCA power inlet
HV output connector	Modified shell size 19 TNM female socket
Control interface connector	40 pin Harting connector or 37 way D-Sub connector

Harting connector:

Pin	Function	Description
1	3PhaseApplied	+24V = Command close contactor. 0V (or o/c) = Open contactor.
2	0VLogicRef	0V return for the LOGIC INPUT SIGNALS only.
3	HV_NoFault	+24V = HVPSU fit to operate. 0V (is open circuit) = Fault present

		preventing operation.
4	HV_Monitor	+24V = HV is ON at lowest internal command level (i.e. at PWM chip). 0V (is open circuit) = HV is held off.
5	HV_kvCtrl	+24V = The output voltage is maintained. 0V (is open circuit) = The output voltage is indeterminate.
6	HV_mACtrl	+24V = The output current is maintained. 0V (is open circuit) = The output current is indeterminate.
7	ExcessArc	+24V = Normal operation. 0V (is open circuit) = Trip caused by excessive arcing/discharge.
8	3PhaseMon	+24V = Contactor is closed. 0V (is open circuit) = Contactor is open.
9	HV_Enable1	+24V = Activate HV (needs confirmation from enable 2). 0V (or o/c) = HV inactive.
10	HV_Enable2	+24V = Activate HV (needs confirmation from enable 1). 0V (or o/c) = HV inactive.
11	-15VControlBox	-15VDC low power source from HVPSU to provide power for references, etc. (~100mA available).
12	ArcDetectReset	+24V = Clear the latched arc detection signal (line 7). 0V (or o/c) = Normal state.
13	+15VControlBox	+15VDC low power source from HVPSU to provide power for references, etc. (~100mA available).
14	EmStopIntlk	+24VDC input to HVPSU indicating emergency stop healthy. When logic 0, opens internal contactor in HVPSU
15	DoorIntlk	+24VDC input to HVPSU indicating reactor door closed. When logic 0, opens internal contactor in HVPSU
16	HV_kvMonitor	0-10V analogue signal to PLC Host representing actual HV output. 10V = 120kV.
17	0VAnalogueHV	0V reference output. Avoid current flow in this wire which will cause offsets.
18	HV_mAMonitor	0-10V analogue signal to PLC Host representing actual mA output. 10V = 15mA.
19		
20	0VLogicRet	0V current return for the LOGIC OUTPUTS ONLY. This is the return path for the LED currents
21	HV_kvCommand	0-10V analogue signal to HVPSU defining the high voltage set point or maximum limit.
22	HV_mACommand	0-10V analogue signal to HVPSU defining limiting/demand output current
23	ExtWarningLampPOS	Output to external warning lamp (+12V/5W only)
24	ExtWarningLampNEG	Return from external warning lamp
25	ContactLockout	+24V = Normal operation. 0V (is open



		circuit) = Pulse indicating contactor is opened. This causes a delay before the contactor can be closed again. Prevents abuse of the contactor.
26	LampAlarm	+24V = Normal operation. 0V (is open circuit) = The external warning lamp is failed at the same time as the contactor is requested closed. Signal inactive if contactor requested open.
27	Fan1OK	+24V = Cross-member fan OK. 0V (is open circuit) = Fan fault detected.
28	Fan2OK	+24V = Rear panel fan OK. 0V (is open circuit) = Fan fault detected.
29	Fan3OK	+24V = Side panel fan OK. 0V (is open circuit) = Fan fault detected.
30	PFC1IOGOK	+24V = PFC Module 1 indicates the output is good. 0V (is open circuit) = Not good.
31	PFC1ENOK	+24V = PFC Module 1 Load Enable signal is good. 0V (is open circuit) = Not good.
32	PFC2IOGOK	+24V = PFC Module 2 indicates the output is good. 0V (is open circuit) = Not good.
33	PFC2ENOK	+24V = PFC Module 2 Load Enable signal is good. 0V (is open circuit) = Not good.
34	Thermal_1OK	+24V = The thermal switch 1 has not operated. 0V (is open circuit) = Overtemperature.
35	Thermal_2OK	+24V = The thermal switch 1 has not operated. 0V (is open circuit) = Overtemperature.
36	LVPSU_OK	+24V = All the internal low voltage power rails are good. 0V (is open circuit) = Power rail(s) out of spec..
37	Inverter1_O/C	+24V = Normal operation. 0V (is open circuit) = Pulsed momentarily low to indicate that the current limit signal for inverter 1 has been activated.
38	Inverter2_O/C	+24V = Normal operation. 0V (is open circuit) = Pulsed momentarily low to indicate that the current limit signal for inverter 2 has been activated.
39		Do not use (no mating terminal at PLC end)
40		Do not use (no mating terminal at PLC end)

7	+15VControlBox	26	EmStopIntlk
8	DoorIntlk	27	HV_kVMonitor
9	0VAnalogueHV	28	HV_mAMonitor
10	0VLogicRet	29	HV_kVCommand
11	HV_mACommand	30	ExtWarningLampPOS
12	ExtWarningLampNEG	31	ContactorLockout
13	LampAlarm	32	Fan1OK
14	Fan2OK	33	Fan3OK
15	PFC1IOGOK	34	PFC1ENOK
16	PFC2IOGOK	35	PFC2ENOK
17	Thermal_1OK	36	Thermal_2OK
18	LVPSU_OK	37	Inverter1_O/C
19	Inverter2_O/C		

Safety

- This power supply contains hazardous voltages and stored energy. Contact with the output may result in fatal injury. It should only be used and maintained by trained personnel.
- The area where the power supply is to be used should be kept clean and dry.
- Keep a safe distance from the output connector and any items connected to it.
- Ensure that a secure connection is made between the Earth side of the load and the green and yellow Earth lead.

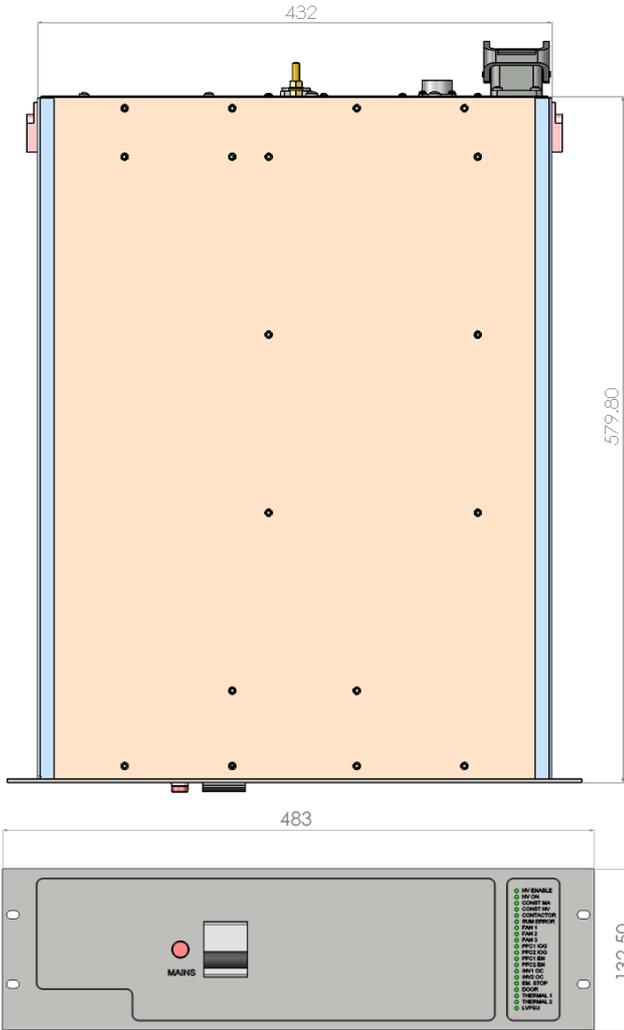
D-Sub connector (For detailed pin descriptions please refer to the Harting connector):

Pin	Pin function		
1	3PhaseApplied	20	0VLogicRef
2	HV_NoFault	21	HV_Monitor
3	HV_kVCtrl	22	HV_mACtrl
4	ExcessArc	23	3PhaseMon
5	HV_Enable1	24	HV_Enable2
6	-15VControlBox	25	ArcDetectReset

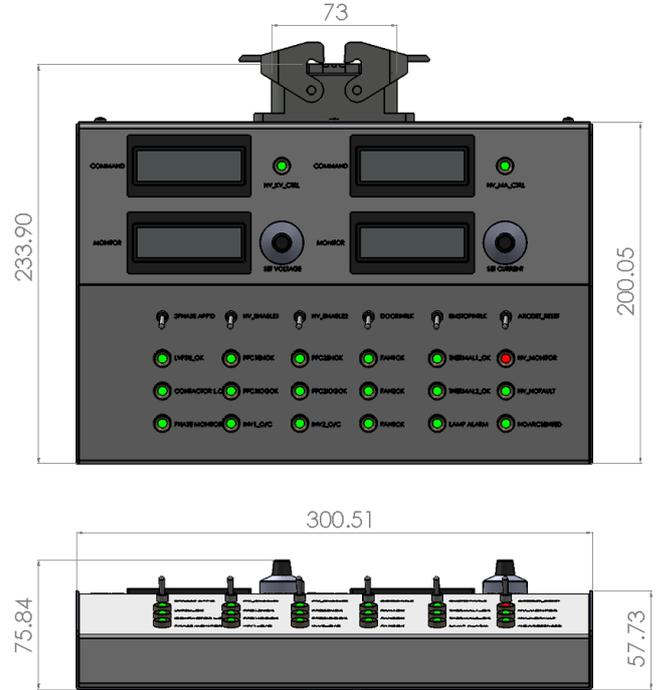


Dimensions

Pegasus P1800:



Pegasus P1800 console box:



For requirements other than those specified, please do not hesitate to contact the factory.

Pegasus P1800 control panel:

