

16 kJ/s Capacitor Charging HVPS

Key Features

- Capacitor Charging High Voltage Supply
- 16 kJ/sec Average Charging Rate
- Output: + or – 25 kV
- Input 3 Phase 400 VAC, 50/60Hz
- Encapsulated, NO OIL
- Optimized Charging Cycle (OCC)
- Front Panel Display and Control
- Remote Controlled
- Rep Rate up to 1000 pps
- Compact, Lightweight
- Low Stored Energy



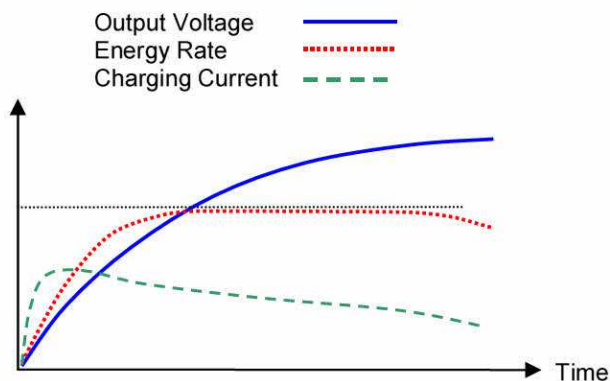
Description

The model GH2516 is a state-of-the-art power conversion unit utilizing IGBT switches operating at high frequency in a series resonance topology. This air-cooled unit contains no oil or other dielectric fluids, so the unit is significantly lighter and more reliable than comparable units.

The advanced Optimized Charging Cycle (OCC) reduces the peak power consumption from the line. This feature enables charging of large capacitor banks without exceeding the allowed average power. At the beginning of the charge cycle the unit operates in a current limit mode, which remains in effect until the output voltage reaches about 33% of the maximum rated voltage of the power supply. Thereafter, the unit delivers a controlled average energy rate to the load capacitor, thus the ratio of peak power to average power of the power supply is very low.

The unit provides “Power On”, “Ready” (End Of Charge) signal, “Charging”, “Interlock” and Sum Fault” indication on the remote control connector and via LED on the front panel.

Optimized Charging Cycle (OCC)



Applications

- PFN Charging
- Magnetron Systems
- Laser Charging
- Capacitors Bank
- Modulators

Typical Specifications (GH2516)

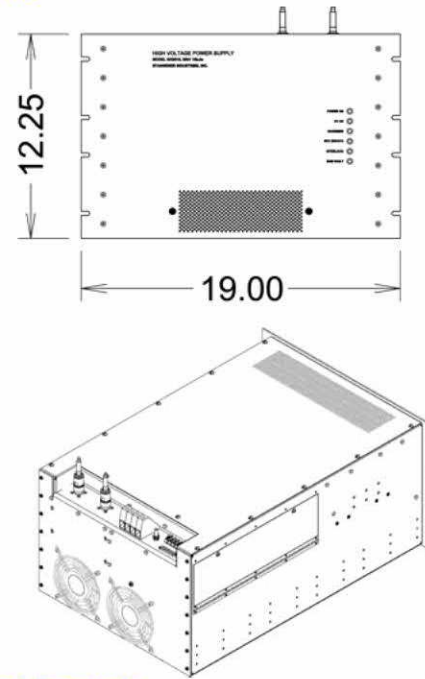
AC Input:	400Vac 3 phase 50/60Hz
Output Voltage:	+ or – 25 kV
Avg. Charging Rate:	16 kJ/sec
Peak Charging Rate:	23 kJ/sec
Repeatability:	± 0.1% @ 400Hz
Efficiency:	87% typical
Power Factor:	0.85 or better
Size:	19" W x 12.5" H x 26" D
Weight:	150 lbs.
Cooling:	Forced air
Temperature:	-25 to +85 °C storage 0 to +50 °C operating

Interface

HV output:	Contact Factory
AC Input Connector:	VDE, UL, CSA approved
Remote Control:	25 pin D-type

Pin	Name	Description
1	AUX OUTPUT	12 VDC/100 MA OUTPUT
2	RING FAULT IN	MASTER FAULT FROM SLAVES
3	RING FAULT EMITTER	SLAVE FAULT GND TO MASTER
4	EOC READY EMITTER	EOND OF CHARGE REMOTE GND
5	SUMMARY FAULT	SUMMARY OF ALL FAULTS
6	NEGATIVE KV DET	INDICATOR OF NEG OUTPUT
7	HV IS ON	INDICATES HV ENABLE IS ON
8	REMOTE +24 VOLTS	24 SUPPLY FOR DIGITAL INPUTS
9	HV ENABLE	OPTICALLY ISOLATED HV ON
10	INTERLOCK REMOTE2	PROVISION FOR EXTERNAL INTLK
11	SLAVE V PROGRAM	MASTER V PROGRAM OUT TO SLAVES
12	V MONITOR PEAK	OUTPUT OF V MAX
13	V PROGRAM IN	DIFF V PROGRAM 10V=25KV
14	DIGITAL GND	DIGITAL SIGNALS GND
15	RING FAULT COLLECT	SLAVE FAULT TO MASTER
16	EOC READY COLLECT	END OF CHARGE ISOLATED SIGNAL
17	UNUSED	NC
18	POSITIVE KV DET	INDICATOR OF POSITIVE OUTPUT
19	PS CHARGING	INDICAT HVPS IS CHARGING
20	RESET IN	INPUT TO RESET LATCHED FAULTS
21	FAST INHIBIT IN	INPUT TO TURN OFF CHARGING
22	INTERLOCK REMOTE1	PROVISION FOR REMOTE INTERLOCK
23	+10V REFERENCE	OUTPUT FROM 10V REFERENCE
24	GROUND	ANALOG SIGNAL GND
25	V PROGRAM RET	RETURN FOR SINGAL PIN 13

Dimensions



Front Panel Controls

- OEM version

Front Panel Display

- LED's display for: Charging, Ready (EOC), Over Load Fault, Over Temp, Sum Fault

Safety & Protections

- User interlock
- No-load, Short Circuit, Arc protection
- Over Voltage, Over Temperature protection
- UL, VDE, CSA safety approval (pending)

Options

- Operation to 1000 pps
- 208/400/480VAC Line Voltage
- Positive or Negative Polarity
- Parallel operation

This datasheet is for reference only, contact factory for full specifications.

25 kJ/s Capacitor Charging HVPS

Key Features

- Capacitor Charging High Voltage Supply
- 25 kJ/sec Average Charging Rate
- Output: ± 25 kV
- Input 3 Phase 400 VAC, 50/60Hz
- No Dielectric fluids
- Optimized Charging Cycle (OCC)
- Front Panel Display
- Remote Controlled
- Rep Rate up to 400 pps
- Compact
- Low Stored Energy



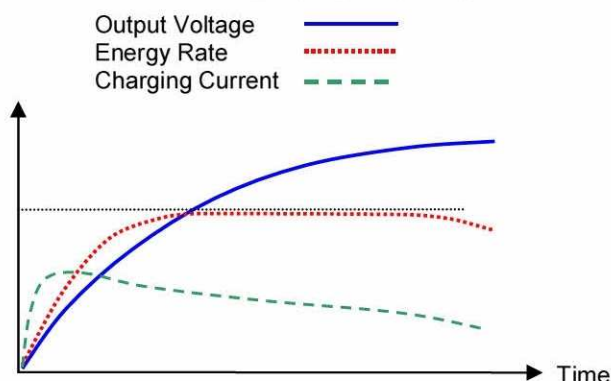
Description

The model GH2525-M1 is a state-of-the-art power conversion unit utilizing IGBT switches operating at high frequency in a series resonance topology. This water cooled unit contains a silicon oil dielectric and is significantly more reliable than comparable units.

The advanced Optimized Charging Cycle (OCC) reduces the peak power consumption from the line. This feature enables charging of large capacitor banks without exceeding the allowed average power. At the beginning of the charge cycle the unit operates in a current limit mode, which remains in effect until the output voltage reaches about 33% of the maximum rated voltage of the power supply. Thereafter, the unit delivers a controlled average energy rate to the load capacitor, thus the ratio of peak power to average power of the power supply is very low.

The unit provides "Power On", "Ready" (End Of Charge) signal, "Charging", "Interlock" and Sum Fault" indication on the remote control connector and via LED on the front panel.

Optimized Charging Cycle (OCC)



Applications

- PFN Charging
- Magnetron Systems
- Laser Charging
- Capacitors Bank
- Modulators

Typical Specifications (GH2525)

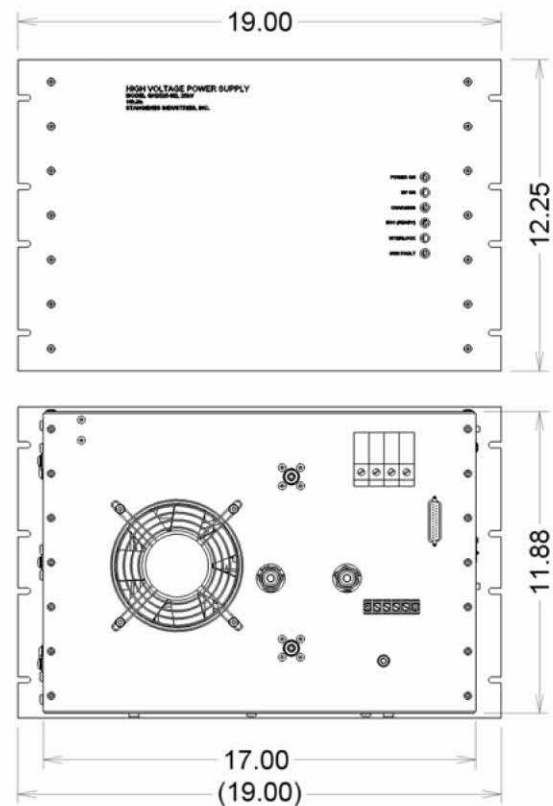
AC Input:	400Vac 3 phase 50/60Hz
Output Voltage:	+ / – 25 kV
Avg. Charging Rate:	25 kJ/sec
Peak Charging Rate:	30 kJ/sec
Repeatability:	± 0.1% @ 400Hz
Efficiency:	87% typical
Power Factor:	0.85 or better
Size:	19" W x 12.5" H x 26" D
Weight:	200 lbs.
Cooling:	2 gpm water 40 deg C or less
Temperature:	-25 to +85 °C storage 0 to +50 °C operating

Interface

HV output:	Contact Factory
AC Input Connector:	VDE, UL, CSA approved
Remote Control:	25 pin D-type

Pin	Name	Description
1	AUX OUTPUT	12 VDC/100 MA OUTPUT
2	RING FAULT IN	MASTER FAULT FROM SLAVES
3	RING FAULT EMITTER	SLAVE FAULT GND TO MASTER
4	EOC READY EMITTER	EOND OF CHARGE REMOTE GND
5	SUMMARY FAULT	SUMMARY OF ALL FAULTS
6	NEGATIVE KV DET	INDICATOR OF NEG OUTPUT
7	HV IS ON	INDICATES HV ENABLE IS ON
8	REMOTE +24 VOLTS	24 SUPPLY FOR DIGITAL INPUTS
9	HV ENABLE	OPTICALLY ISOLATED HV ON
10	INTERLOCK REMOTE2	PROVISION FOR EXTERNAL INTLK
11	SLAVE V PROGRAM	MASTER V PROGRAM OUT TO SLAVES
12	V MONITOR PEAK	OUTPUT OF V MAX
13	V PROGRAM IN	DIFF V PROGRAM 10V=25KV
14	DIGITAL GND	DIGITAL SIGNALS GND
15	RING FAULT COLLECT	SLAVE FAULT TO MASTER
16	EOC READY COLLECT	END OF CHARGE ISOLATED SIGNAL
17	UNUSED	NC
18	POSITIVE KV DET	INDICATOR OF POSITIVE OUTPUT
19	PS CHARGING	INDICAT HVPS IS CHARGING
20	RESET IN	INPUT TO RESET LATCHED FAULTS
21	FAST INHIBIT IN	INPUT TO TURN OFF CHARGING
22	INTERLOCK REMOTE1	PROVISION FOR REMOTE INTERLOCK
23	+10V REFERENCE	OUTPUT FROM 10V REFERENCE
24	GROUND	ANALOG SIGNAL GND
25	V PROGRAM RET	RETURN FOR SINGAL PIN 13

Dimensions



Front Panel Controls

- OEM version

Front Panel Display

- LED's display for: Charging, Ready (EOC), Over Load Fault, Over Temp, Sum Fault

Safety & Protections

- User interlock
- No-load, Short Circuit, Arc protection
- Over Voltage, Over Temperature protection
- UL, VDE, CSA safety approval (pending)

Options

- Operation to 1000 pps
- 208/400/480VAC Line Voltage
- Positive or Negative Polarity
- Parallel operation

This datasheet is preliminary, mechanical parameters will change, contact factory for full specifications.

16 kJ/s Capacitor Charging HVPS

Key Features

- Capacitor Charging High Voltage Supply
- 16 kJ/sec Average Charging Rate
- Output: 0 – 50 kV
- Input 3 Phase 400 VAC, 50/60Hz
- Silicon Oil Insulated HV section
- Optimized Charging Cycle (OCC)
- Front Panel Display
- Remote Controlled
- Rep Rate up to 400 pps
- Compact
- Low Stored Energy



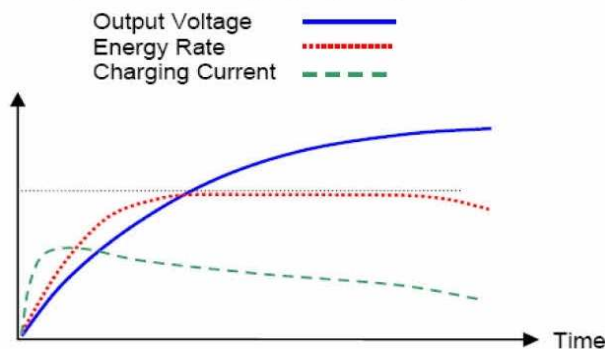
Description

The model GH5016 is a state-of-the-art power conversion unit utilizing IGBT switches operating at high frequency in a series resonance topology. This water cooled unit contains a silicon oil dielectric and is significantly more reliable than comparable units.

The advanced Optimized Charging Cycle (OCC) reduces the peak power consumption from the line. This feature enables charging of large capacitor banks without exceeding the allowed average power. At the beginning of the charge cycle the unit operates in a current limit mode, which remains in effect until the output voltage reaches about 33% of the maximum rated voltage of the power supply. Thereafter, the unit delivers a controlled average energy rate to the load capacitor, thus the ratio of peak power to average power of the power supply is very low.

The unit provides "Power On", "Ready" (End Of Charge) signal, "Charging", "Interlock" and Sum Fault" indication on the remote control connector and via LED on the front panel.

Optimized Charging Cycle (OCC)



Applications

- PFN Charging
- Magnetron Systems
- Laser Charging
- Capacitors Bank
- Modulators

Typical Specifications (GH5016)

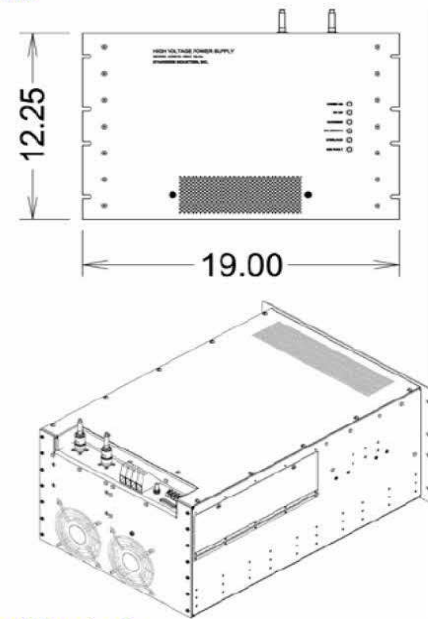
AC Input:	400Vac 3 phase 50/60Hz
Output Voltage:	0 – 50 kV
Avg. Charging Rate:	16 kJ/sec
Peak Charging Rate:	23 kJ/sec
Repeatability:	± 0.1% @ 400Hz
Efficiency:	87% typical
Power Factor:	0.85 or better
Size:	19" W x 12.25" H x 26" D
Weight:	200 lbs.
Cooling:	2 gpm water 40 deg C or less
Temperature:	-25 to +85 °C storage 0 to +50 °C operating

Interface

HV output:	Contact Factory
AC Input Connector:	VDE, UL, CSA approved
Remote Control:	25 pin D-type

Pin	Name	Description
1	AUX OUTPUT	12 VDC/100 MA OUTPUT
2	RING FAULT IN	MASTER FAULT FROM SLAVES
3	RING FAULT EMITTER	SLAVE FAULT GND TO MASTER
4	EOC READY EMITTER	END OF CHARGE REMOTE GND
5	SUMMARY FAULT	SUMMARY OF ALL FAULTS
6	NEGATIVE KV DET	INDICATOR OF NEG OUTPUT
7	HV IS ON	INDICATES HV ENABLE IS ON
8	REMOTE +24 VOLTS	24 SUPPLY FOR DIGITAL INPUTS
9	HV ENABLE	OPTICALLY ISOLATED HV ON
10	INTERLOCK REMOTE2	PROVISION FOR EXTERNAL INTLK
11	SLAVE V PROGRAM	MASTER V PROGRM OUT TO SLAVES
12	V MONITOR PEAK	OUTPUT OF V MAX
13	V PROGRAM IN	DIFF V PROGRAM 10V=25KV
14	DIGITAL GND	DIGITAL SIGNALS GND
15	RING FAULT COLLECT	SLAVE FAULT TO MASTER
16	EOC READY COLLECT	END OF CHARGE ISOLATED SIGNAL
17	UNUSED	NC
18	POSITIVE KV DET	INDICATOR OF POSITIVE OUTPUT
19	PS CHARGING	INDICAT HVPS IS CHARGING
20	RESET IN	INPUT TO RESET LATCHED FAULTS
21	FAST INHIBIT IN	INPUT TO TURN OFF CHARGING
22	INTERLOCK REMOTE1	PROVISION FOR REMOTE INTERLOCK
23	+10V REFERENCE	OUTPUT FROM 10V REFERENCE
24	GROUND	ANALOG SIGNAL GND
25	V PROGRAM RET	RETURN FOR SINGAL PIN 13

Dimensions



Front Panel Controls

- OEM version

Front Panel Display

- LED's display for: Charging, Ready (EOC), Over Load Fault, Over Temp, Sum Fault

Safety & Protections

- User interlock
- No-load, Short Circuit, Arc protection
- Over Voltage, Over Temperature protection
- UL, VDE, CSA safety approval (pending)

Options

- Operation to 1000 pps
- 208/400/480VAC Line Voltage
- Positive or Negative Polarity
- Parallel operation

This datasheet is preliminary, mechanical parameters will change, contact factory for full specifications.



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Model SIHV-12110-M1

Preliminary

110 kJ/s Capacitor Charging HVPS System

Key Features

- Capacitor Charging High Voltage Supply
- 110 kJ/sec Average Charging Rate
- Output: 12kV
- Input 3 Phase 400 VAC, 50/60Hz
- No oil or dielectric fluids
- Optimized Charging Cycle (OCC)
- Front Panel Display
- Remote Controlled
- Rep Rate up to 1000 pps
- Low Stored Energy

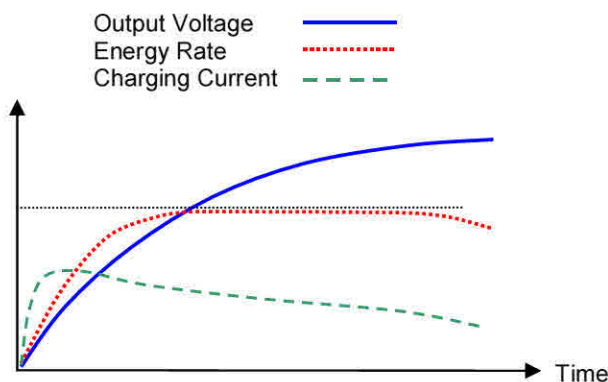
Description

The model SIHV-12110-M1 is a state-of-the-art power conversion unit utilizing multiple separate SIHV power supplies operating in parallel to provide expanded power ranges with redundant reliability. This rack is configured with three thirty eight (38 kJ/S) SIHV power supplies capable of delivering 110 kilowatts (kJ/sec) of continuous power at 12 kV. A power distribution chassis and HV daisy chaining chassis in each rack allows for easy paralleling of these racks into even higher power systems. Each SIHV power supply uses IGBT switches operating at high frequency in a series resonance topology. This water-cooled unit contains no oil, so the unit is significantly lighter and more reliable than comparable units.

The SI advanced Optimized Charging Cycle (OCC) topology reduces the peak power consumption from the line. This feature enables charging of large capacitor banks without exceeding the allowed average power. At the beginning of the charge cycle the unit operates in a current limit mode, which remains in effect until the output voltage reaches about 33% of the maximum rated voltage of the power supply. Thereafter, the unit delivers a controlled average energy rate to the load capacitor, thus the ratio of peak power to average power of the power supply is very low.

The unit provides "Power On", "HV On", EOC (End of Charge), "Charging" and "Summary Fault" indication on the remote control connector and via LED on the front panel.

Optimized Charging Cycle (OCC)



Applications

- PFN Charging
- Magnetron Systems
- Laser Charging
- Capacitors Bank
- Modulators

Typical Specifications (SIHV-12110)

AC Input:	400 VAC 3 phase 50/60Hz
Output Voltage:	12 kV
Avg. Charging Rate:	110 kJ/sec
Peak Charging Rate:	160 kJ/sec
Repeatability:	$\pm 0.1\%$ @ 400 Hz
Efficiency:	87% typical
Power Factor:	0.85 or better
Size:	24" W x 65" H x 34" D
Weight:	300 lbs.
Cooling:	water
Temperature:	-25 to +85 °C storage 0 to +50 °C operating

Interface

HV output:	Contact Factory
AC Input Connector:	VDE, UL, CSA approved
Remote Control:	25 pin D-type

PIN	SIGNAL NAME	I/O	DESCRIPTION
1	+15V	OUTPUT	+15V at 125mA max
2	SUMMARY FAULT	OUTPUT	Summary fault condition
3	INHIBIT LED	OUTPUT	PS is receiving an inhibit input
4	EOC LED	OUTPUT	PS has reached end of charge
5	EXCESS REVERSAL	OUTPUT	Reversal in output circuit
6	WARNING LED	OUTPUT	Cooling fan fault
7	OVER VOLTAGE	OUTPUT	Over voltage at the output
8	ARC LED	OUTPUT	Arcing in the HV section
9	V _{PROG} SHIELD	INPUT	Shield from the V _{PROGRAM} Cable
10	ENABLE/RESET	INPUT	15V = High Voltage On, Gnd off
11	V _{PROGRAM} +	INPUT	0-10V = 0 to 100%
12	V _{PROGRAM} -	INPUT	Signal Return (V _{PROGRAM})
13	V _{ANALOG} +	OUTPUT	0-10V analog of output voltage
14	V _{ANALOG} -	OUTPUT	Signal Return (V _{ANALOG})
15	V _{ANALOG} SHIELD	OUTPUT	Shield from the V _{ANALOG} Cable
16	HV ON LED	OUTPUT	HV is ON
17	LOAD FAULT LED	OUTPUT	output current exceeded max
18	INPUT POWER FAULT LED	OUTPUT	Low ac line or phase loss
19	O/T FAULT LED	OUTPUT	Over temperature
20	INTERLOCK LED	OUTPUT	Interlock is open
21	DIGITAL GROUND		Common Ground Digital Circuits
22	INHIBIT GATE	INPUT	> 3v Inhibits the unit operation.
23	ANALOG GROUND		Analog and chassis ground
24	+24 Vdc Input (3a)	INPUT	+24 Vdc to keep PS active if external contactor is activated
25			

Dimensions

see attached drawing 731-SIHV-5016-M1.pdf

Front Panel Display

- LED's display for: Power On, HV On, Charging, EOC (Ready), Interlock, Sum Fault

Safety & Protections

- User interlock
- No-load, Short Circuit, Arc protection
- Over Voltage, Over Temperature protection
- UL, VDE, CSA safety approval (pending)

Options

- 3 ½ digits peak charging KV display
- Operation to 1000 pps
- Positive or Negative Polarity
- Parallel operation

This datasheet is for reference only, contact factory for full specifications