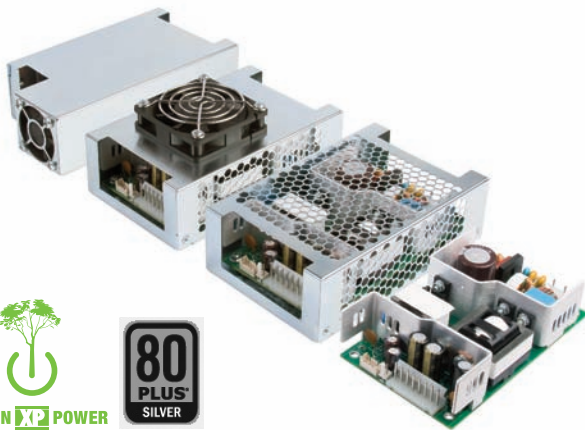


GCS Series



Specification

Input

Input Voltage	• 85-264 VAC, derate output power <90 VAC by 10%
Input Frequency	• 47-63 Hz
Input Current	• 1.5/1.8 A typical at 115 VAC, full load (150/180 W) • 0.7/0.8 A typical at 230 VAC, full load (150/180 W)
Inrush Current	• 80 A typical at 230 VAC, cold start at 25 °C
Power Factor	• EN61000-3-2, class A Compliant (Class C > 50 W load)
Earth Leakage Current	• 200 µA max (GCS150), 250 µA max (GCS180) at 264 VAC/60 Hz
No Load Input Power	• <0.5 W
Input Protection	• Internal T3.15 A/250 V fuse in line and neutral

Output

Output Voltage	• 12-48 VDC (see Models & Ratings table)
Output Voltage Trim	• ±2%, fan output will track by same percentage
Initial Set Accuracy	• ±1% V1, ±5% V Fan
Minimum Load	• None
Start Up Delay	• 0.5 s max
Hold Up Time	• 18 ms typical
Drift	• ±0.2% after 20 min warm up
Line Regulation	• ±0.5% max
Load Regulation	• ±0.5% V1, ±5% V Fan
Over/Undershoot	• 12 - 28 V models none, 48 V models typically 5%
Transient Response	• 4% max. deviation, recovery to within 1% in 500 µs for a 50-75-50% load change
Ripple & Noise	• 1% pk-pk V1, 12 V models 1.5%, 20 MHz bandwidth
Overvoltage Protection	• 115-140% Vnom, recycle input to reset
Overload Protection	• 110-150% V1 only
Short Circuit Protection	• Continuous
Temperature Coefficient	• 0.05%/°C
Remote Sense	• Compensates for 0.5 V total voltage drop
Remote On/Off	• Optional, -R models (see longform datasheet for full details)

- Convection/Forced-cooled Ratings
- IT & Medical Safety Approvals (Class I & II)
- < 0.5W Standby Power
- -40° C to +70° C Operation
- Remote On/Off (-R Models)
- Class B Emissions
- 3 Year Warranty

General

Efficiency	• 93% typical
Isolation	• 4000 VAC Input to Output 2 x MOPP, 1500 VAC Input to Ground 1 x MOPP, 500 VDC Output to Ground
Switching Frequency	• 65/100 KHz PFC/Main Converter
MTBF	• 569 kHrs to MIL-HDBK-217F at 25 °C, GB
Power Density	• 8.5 W/in ³

Environmental

Operating Temperature	• -40 °C to +70 °C derate linearly from +50 °C at 2.5%/°C to 50% load at +70 °C
Cooling	• Convection & Fan cooled ratings (see Models & Ratings tables)
Operating Humidity	• 95% RH, non-condensing
Storage Temperature	• -40 °C to +85 °C
Operating Altitude	• 3048 m
Shock	• ±3 x 30g shocks in each plane, total 18 shocks. 30g = 11ms (+/-0.5msec), half sine, conforms to EN60068-2-27 & EN60068-2-47
Vibration	• Single axis 10 - 500 Hz at 2g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6

EMC & Safety

Low Voltage PSU EMC Emissions	• EN61204-3, high severity level • EN55011/22 level B conducted • EN55011/22 level B radiated (GCS180 level A)
Harmonic Currents	• EN61000-3-2, class A & C
Voltage Flicker	• EN61000-3-3
Radiated Immunity	• EN61000-4-3, level 3 Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3 Perf Criteria A
Surge	• EN61000-4-5, installation class 3 Perf Criteria A
Conducted Immunity	• EN61000-4-6, level 3 Perf Criteria A
Dips & Interruptions	• EN55024 & EN60601-1-2 (see longform datasheet for details)
Safety Approvals	• EN60601-1, ANSI/AAMI ES60601-1, CSA22.2 No. 60601-1 per cUL, Including Risk Management, EN60950, UL60950

Models and Ratings

GCS150/180 **XP**

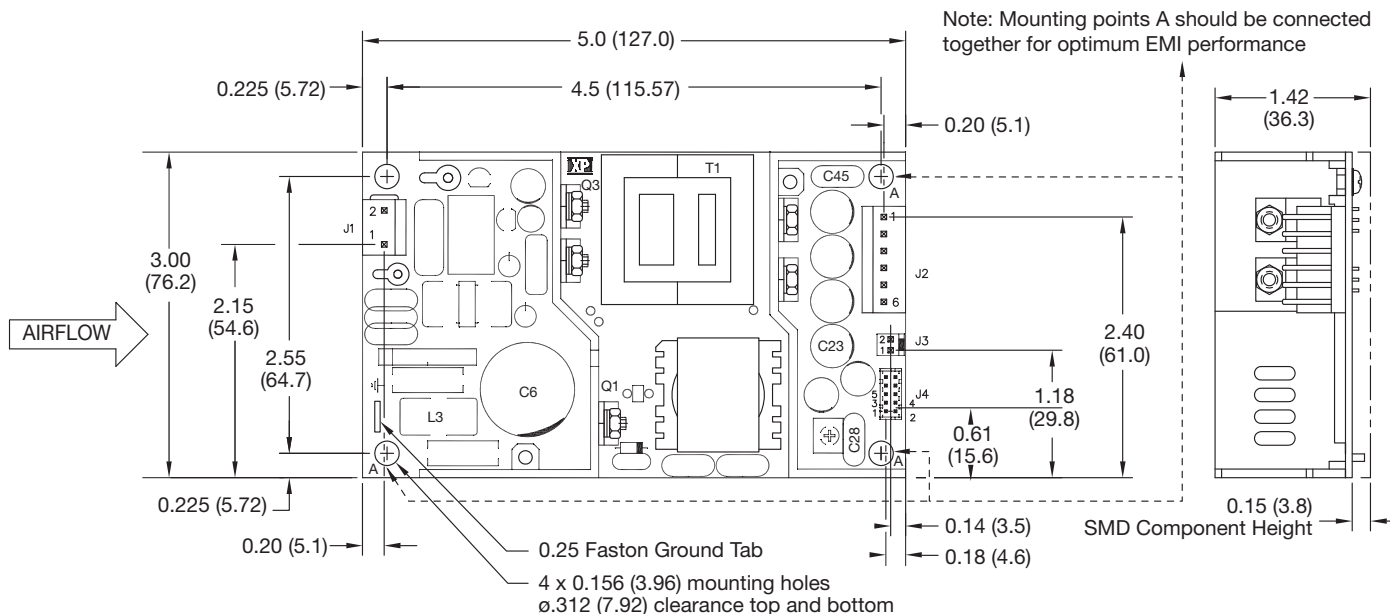
Output Voltage V1	Output Current V1		Output Voltage (Vfan) & Current	Maximum Output Power	Model Number ^(1,2,3,4)
	Convection Cooled	Forced Cooled (7 CFM)			
12.0 VDC	9.2 A	12.5 A	12.0 VDC/0.6 A	157 W	GCS150PS12
15.0 VDC	7.3 A	10.0 A	12.0 VDC/0.6 A	157 W	GCS150PS15
24.0 VDC	4.6 A	6.3 A	12.0 VDC/0.6 A	157 W	GCS150PS24
28.0 VDC	3.9 A	5.4 A	12.0 VDC/0.6 A	157 W	GCS150PS28
48.0 VDC	2.3 A	3.2 A	12.0 VDC/0.6 A	157 W	GCS150PS48
12.0 VDC	12.5 A	15.0 A	12.0 VDC/0.6 A	187 W	GCS180PS12
15.0 VDC	10.0 A	12.0 A	12.0 VDC/0.6 A	187 W	GCS180PS15
24.0 VDC	6.3 A	7.5 A	12.0 VDC/0.6 A	187 W	GCS180PS24
28.0 VDC	5.4 A	6.4 A	12.0 VDC/0.6 A	187 W	GCS180PS28
48.0 VDC	3.1 A	3.7 A	12.0 VDC/0.6 A	187 W	GCS180PS48

Notes

1. Add suffix -C for convection cooled cover, e.g. GCS150PS12-C.
2. Add suffix -EF for fan cooled cover with end fan e.g. GCS150PS12-EF. Note Vfan output no longer available.

3. Add suffix -TF for fan cooled cover with top fan, e.g. GCS150PS12-TF. Note Vfan output no longer available.
4. Add suffix -R for remote on/off, e.g. GCS150PS12-R, GCS150PS12-RC with convection cover or GCS150PS12-REF/GCS150PS12-RTF with fan covers.

Mechanical Details



Input Connector J1 Molex pn. 09-65-2038	
Pin	Function
1	Line
2	Neutral

Output Connector J2 Molex pn. 09-65-2068	
Pin	Single Output
1	+V1
2	+V1
3	+V1
4	RTN
5	RTN
6	RTN

Fan Connector J3 Molex pn. 22-04-1021	
Pin	Function
1	Fan +(12 V)
2	Fan -

Signal Connector J4	
Pin	Single Output
1	+Sense
2	-Sense
3	XP Internal Use
4	Inhibit LO
5	Inhibit HI
6	N/C
7	N/C
8	N/C
9	N/C
10	N/C

Notes

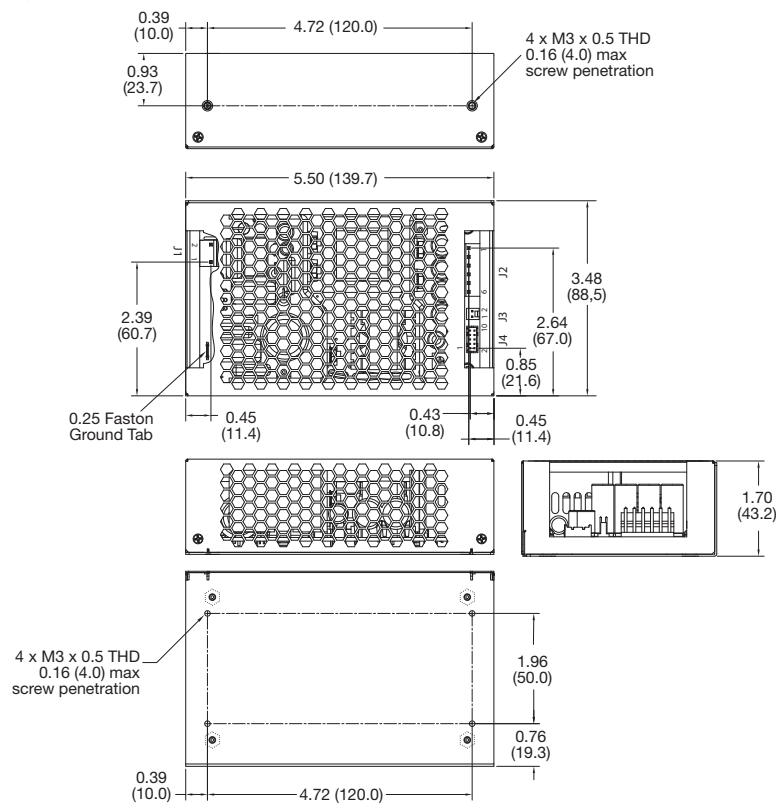
1. All dimensions in inches (mm).
2. Tolerance .xx = ± 0.02 (0.50); .xxx = ± 0.01 (0.25)
3. Weight: 0.65 lbs (0.29 kgs)

4. J1 mates with Molex Housing Pn. 09-50-1031. J2 mates with Molex Housing Pn. 09-50-1061 and both with Molex series 5194 crimp terminals. J4 mates with JST Housing Pn. PHDR-10VS and with JST SPHD-001T-P0.5 crimp terminals. J3 mates with Molex Housing Pn. 51191-0200 and with Molex series 50802 crimp terminals.

Models and Ratings

GCS150/180 **XP**

Covered (-C)



Input Connector J1
Molex pn. 09-65-2038

Pin	Function
1	Line
2	Neutral

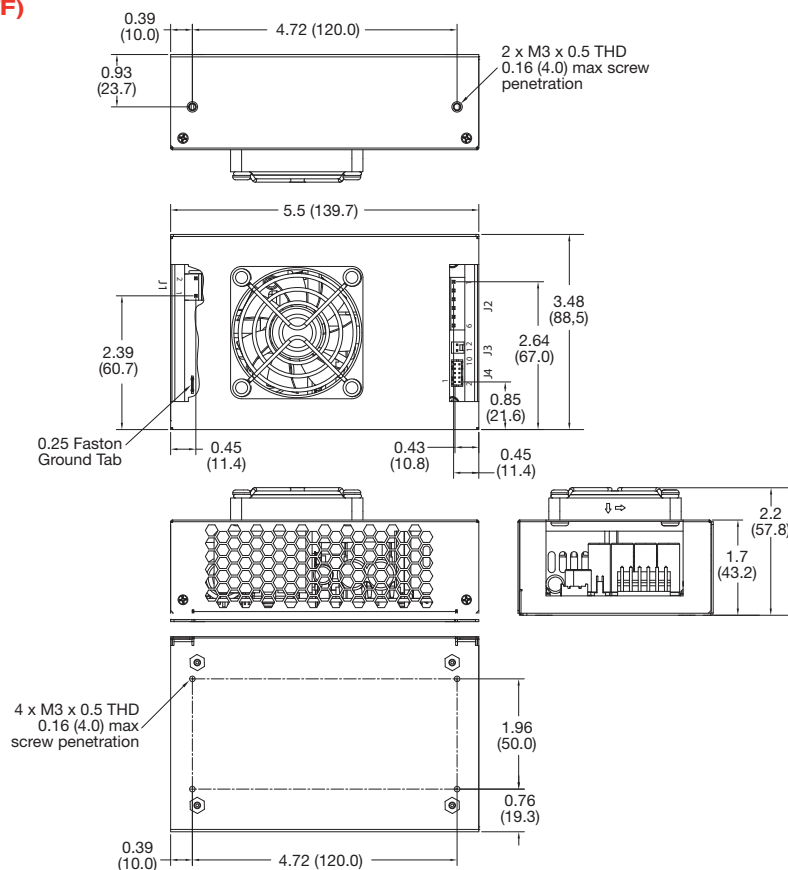
Output Connector J2
Molex pn. 09-65-2068

Pin	Single Output
1	+V1
2	+V1
3	+V1
4	RTN
5	RTN
6	RTN

Signal Connector J4

Pin	Single Output
1	+Sense
2	-Sense
3	XP Internal Use
4	Inhibit LO
5	Inhibit HI
6	N/C
7	N/C
8	N/C
9	N/C
10	N/C

Top Fan (-TF)



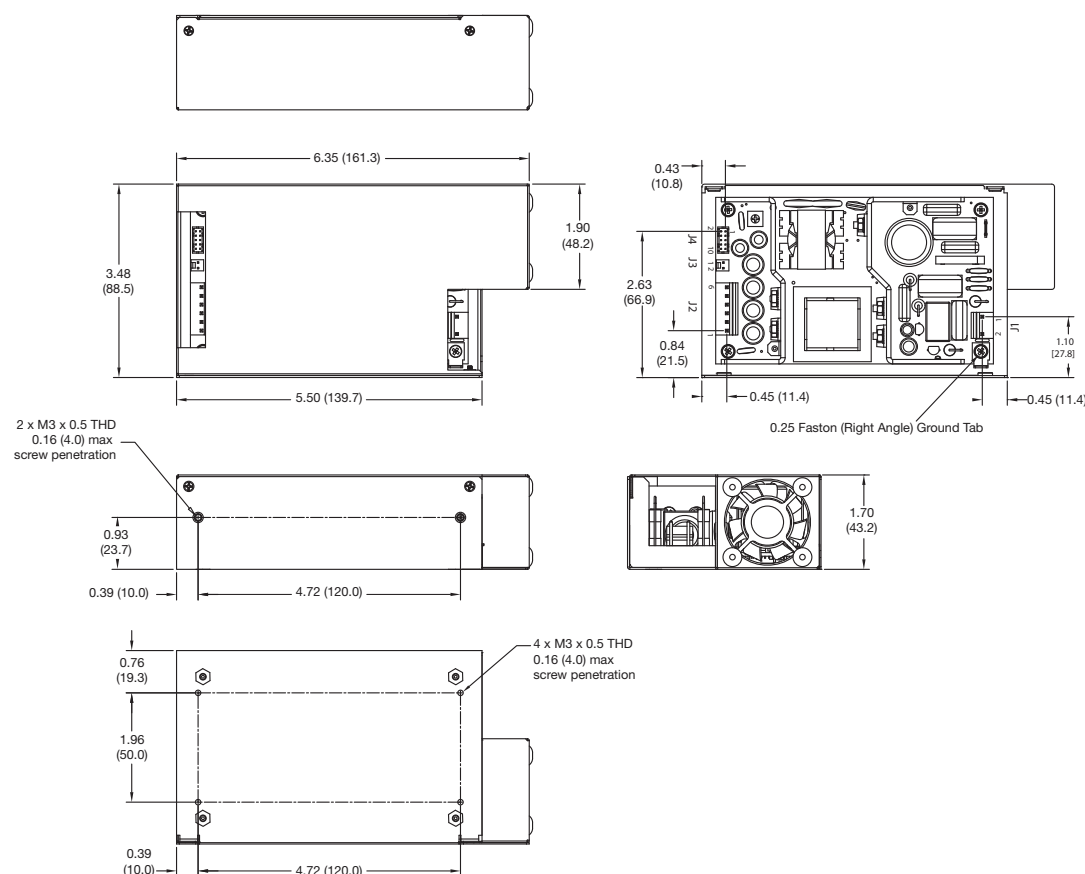
Notes

1. All dimensions in inches (mm).
2. Tolerance .xx = ± 0.02 (0.50); .xxx = ± 0.01 (0.25)
3. J1 mates with Molex Housing Pn. 09-50-1031. J2 mates with Molex Housing Pn. 09-50-1061 and both with Molex series 5194 crimp terminals. J4 mates with JST Housing Pn. PHDR-10VS and with JST SPHD-001T-P0.5 crimp terminals. J3 mates with Molex Housing Pn. 51191-0200 and with Molex series 50802 crimp terminals.
4. In class II installations the cover is floating and provides 1 x MOPP (2 x MOOPP).
5. Weight: Covered Unit : 1.05 lbs (0.48 kgs)
Top Fan Unit : 1.15 lbs (0.52 kgs)

Models and Ratings

GCS150/180 **XP**

End Fan (-EF)

Input Connector J1
Molex pn. 09-65-2038

Pin	Function
1	Line
2	Neutral

Output Connector J2
Molex pn. 09-65-2068

Pin	Single Output
1	+V1
2	+V1
3	+V1
4	RTN
5	RTN
6	RTN

Signal Connector J4

Pin	Single Output
1	+Sense
2	-Sense
3	XP Internal Use
4	Inhibit LO
5	Inhibit HI
6	N/C
7	N/C
8	N/C
9	N/C
10	N/C

Notes

1. All dimensions in inches (mm).
2. Tolerance .xx = ± 0.02 (0.50); .xxx = ± 0.01 (0.25)
3. J1 mates with Molex Housing Pn. 09-50-1031. J2 mates with Molex Housing Pn. 09-50-1061 and both with Molex series 5194 crimp terminals. J4 mates with JST Housing Pn. PHDR-10VS and with JST SPHD-001T-P0.5 crimp terminals. J3 mates with Molex Housing Pn. 51191-0200 and with Molex series 50802 crimp terminals.
4. In class II installations the cover is floating and provides 1 x MOOPP (2 x MOOP).
5. Weight: 1.30 lbs (0.59 Kgs)

Thermal Considerations

In order to ensure safe operation of the PSU in the end-use equipment, the temperature of the components listed in the table below must not be exceeded. Temperature should be monitored using K type thermocouples placed on the hottest part of the component (out of any direct air flow). See Mechanical Details for component locations. See longform datasheet for further information and service life estimates.

Temperature Measurements (Ambient 50 °C)	
Component	Max Temperature °C
T1 Coil	120 °C
L3 Coil	120 °C
Q1 Body	120 °C
Q3 Body	120 °C
C6	105 °C
C23	105 °C