

Delivering leading edge, innovative power solutions for more than **30** years....

Model:GTM96605-GEN2-T2

June 1, 2020

Adaptive USB PD Power Supply/ Quick Charge Charger for Medical Grade and ITE/ICT applications for USB PD 2.0 and USB PD 3.0 Applications T2

Information

Model Number	GTM96605-GEN2-T2
Description	Communication formats supported: USB Power Delivery (PD) 2.0/3.0, Quick Charge™ 2.0/3.0, Quick Charge™ 4.0/4.0+ with up to 7 voltages and VDM options available. Fully globally certified for Medical 60601-1, ICT 62368

Model Picture



Agency Documents	http://www.globtek.info/certs/GTM96605-GEN2/
CE EC-Declaration	https://www.globtek.com/pdf/ec_declaration/a000c00000PGI8DEAX
RoHS/RoHS2 Declaration	https://www.globtek.com/pdf/rohs_cert/a000c00000PGI8DEAX
REACH Declaration	https://www.globtek.com/pdf/iso_certificates/REACH.pdf
Conflict Minerals Declaration	https://www.globtek.com/pdf/conflict-minerals.pdf

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MODEL PARAMETERS

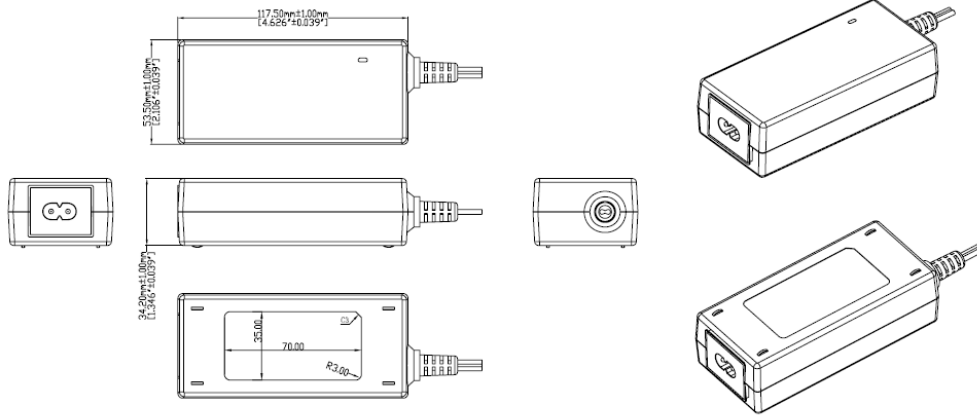
Type	Desktop/External
Technology	USB Adaptive Power Supply AC Adaptor
Category	Adaptive Power USB Source, ITE/Medical
Input Voltage	100-240V~, 50-60Hz
I/P Amps (A)	1.5A
Wattage (W)	60.0
Vout Range (V)	3.6-20
Efficiency Level	USA DOE Level VI / Eco-design Directive 2009/125/EC, (EU) 2019/1782
Ingress Protection	
Size (mm)	

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ENCLOSURE



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RATING TABLE

Model Number	Voltage	Amps(A)	Watts(W)	RFQ
GTM96605-G2A1-T2	V			RFQ
GTM96605-G2A2-T2	V			RFQ

SPECIFICATIONS

OUTPUT CAPABILITIES

Communication formats supported: USB Power Delivery (PD) 2.0/3.0, Quick Charge™ 2.0/3.0, Quick Charge™ 4.0/4.0+

Output Parameters (for USB PD 2.0/3.0 applications):

Communications: Using the 'CC' line in a USB Type-C cable

Initial Output State: 5.0V/2.0A

Advertised USB PD Power Data Objects (PDOs):

A1 Configuration: 5.0V@4.6A, 5.8V@4.6A, 9.0V@4.4A, 12V@4.0A, 15V@3.6A, 15.1V@3.6A[†], 20V@3.0A

A2 Configuration: 5.0V@3.0A, 5.8V@3.0A, 9.0V@3.0A, 12V@3.0A, 15V@3.0A, 15.1V@3.0A[†], 20V@3.0A

A1 Configuration (Standard): Permanently attached (captive) output cable: 1.5m Length, 20AWG, shielded, 5A rated Type-C connector

A2 Configuration (Non-standard): Detachable output cable. Contact GlobTek for availability.

PPS Option: Apply to either A1 or A2 configuration to allow use of USB PD3.0 PPS functionality. PPS is available from 3.6V to 11V. The PPS option removes the 15.1V PDO.

Note 1: Custom PDOs available upon request. PDO1 must be 5.0V. PDO2 through PDO7 may be set to any custom voltage from 3.6V to 20V, with a step size of 100mV.

Note 2: For "mission critical" applications requiring power supply authentication, USB PD Vendor Defined Messages (VDMs) may be implemented to prevent system usage with non-certified power sources.^{††} Please see our article [Product Security and Risk Mitigation for USB Power Delivery \(PD\) Based Systems](#) for additional information.

Output Parameters (for Quick Charge™ 2.0/3.0 applications):

Communications: Using the 'D+' and 'D-' lines in a USB Type-C/Micro-B cable

Initial Output State: 5.0V/2.0A

HVDCP Class B Output Voltages/Currents Ratings:

D+	D-	Output
0.6V	GND	5.0V/4.6A
3.3V	0.6V	9.0V/4.4A
0.6V	0.6V	12V/4.0A
3.3V	3.3V	20V/3.0A
0.6V	3.3V	Continuous Mode, adjusts from 3.6V to 20V in 200mV steps

Permanently attached (captive) output cable: 1.5m Length, 20 AWG, shielded

A) GENERAL ELECTRICAL SPECIFICATIONS

01. Input Voltage: Specified 90-264 V_{AC}, Nameplate rated: 100-240V_{AC}

90-264 V_{AC} range @ 100% of rated load current

85-264 V_{AC} range @ 85% of rated load current

110-370 V_{DC} range @ 100% of rated load current

02. Input Frequency: Specified: 47-63 Hz (Nameplate rated: 50-60Hz)

03. Output Regulation: ± 4%, measured at the output connector

04. Line Voltage Regulation: ± 0.5% (typ.), measured at full load

05. Green Power-On Indicator LED

06. Output Ripple (V_{p-p}): 100 mV, measured at 20 MHz bandwidth, with 0.1 µF ceramic capacitor in parallel with a low impedance 47 µF electrolytic capacitor, connected at the end of the output connector

07. Turn-On/Off Overshoot: 5% (max.), 1 ms (typ) recovery time for 40% to 70% step load

08. Turn-On Delay: 1 second (max.) @ full load and nominal line voltage

09. Hold-Up Time: 8 ms (typ.) @ full load and nominal line voltage

10. Inrush Current: 30A/60A maximum cold start @ 115/230V_{AC} input

11. Efficiency: Efficiency Level VI and CoC Tier 2 compliant

12. No Load Standby Power: <0.075 W @ 230V_{AC}

B) PROTECTIONS

01. Input Protection: Input line fusing and 300V_{AC} MOV

02. Short Circuit/ Overload: Electronically protected, auto-recover upon fault removal

Output Current Limit: 110% to 135% of rated output current

03. Output Over-Voltage: 25V_{DC} max

C) SAFETY

01. Dielectric Withstand Voltage: 4000V_{AC} or 5656V_{DC} from input to output

02. Earth Leakage Current: 3-conductor input models: <300µA, 2-conductor input models: N/A

03. Touch Current: 3-conductor input models: < 20µA, 2-conductor input models: < 65µA

04. Output Isolation Options:

a) C8 Inlet, Class II (Standard)

b) C6 or C14 Inlet, Class II FE, Output Isolated from earth contact (Standard)

c) C6 or C14 Inlet, Class I, Output directly attached to earth contact

05. Means of Protection: 2 x MOPP

06. Compliant Standards: See listings at end the end of this specification for details

D) EMC

EN 60601-1-2, 4th edition

Emissions, per EN 55032, EN 61000-6-3, EN 61000-6-4

Conducted Emissions: Class B, FCC Part 15, Class B

Radiated Emissions: Class B, FCC Part 15, Class B

Line Frequency Harmonics EN61000-3-2, Class A

Voltage Fluctuations/Flicker EN61000-3-3

Immunity, per EN 55024, EN 61000-6-1, EN 61000-6-2

Static Discharge Immunity EN61000-4-2, 10kV Contact Discharge, 20kV air discharge

Radiated RF Immunity EN61000-4-3, 10V/m 80-1000MHz, 3V/m 1-2.7GHz, 80% 1KHz AM.

EFT/Burst Immunity EN61000-4-4, 4kV/100kHz.

Line Surge Immunity EN61000-4-5, 2kV differential, 4kV common-mode

Conducted RF Immunity EN61000-4-6, 3V_{RMS}, 80% 1KHz AM

Power Frequency Magnetic Field Immunity EN61000-4-8, 3A/m

Voltage Dip Immunity EN61000-4-11, Criteria

E) OTHER

01. MTBF: 300,000 Hours @ 25°C ambient temperature

02. Operating Temperature:

-10°C to 40°C ambient temperature at full load

-10°C to 50°C ambient temperature with derating to 80% load

03. Operating Humidity: 0% to 95% relative humidity, non-condensing

04. Storage Temperature: -30°C to 80°C

05. Operating Altitude: 5000m

06. ROHS 2: Complies with EU 2011/65/EU and China SJ/T 11363-2006

F) ENCLOSURE

01. Housing: High impact plastic, 94V0 polycarbonate, non-vented

02. Markings: Label or Laser Printed

03. AC Input mechanical options:

Desktop C6, C8, C14 or C18 IEC Inlet.

Hybrid option (Desktop or Wall Plug-in) Class I or Class II input

G) SECURITY

For USB Power Delivery only

Two non-standard voltage profiles are included: 5.8V and 15.1V. System designers may use these non-standard profiles to prevent system operation with non-GlobTek power supplies. (Note: 12.0V is technically

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not standard, but is often included in other power supplies.)

The power supply will respond to a USB PD "Discover Identity" VDM with 0x4754 in the "ProductID" field. USB PD host systems may check this value before initiating/allowing power negotiation.

Please see our article [Product Security and Risk Mitigation for USB Power Delivery \(PD\) Based Systems](#) for additional information.

H) SPECIAL OPTIONS

Non-standard - Contact GlobTek for details

01. Detachable USB-C output cord
02. Special fixed output cord length: 1m, 2m or 3m lengths
03. Custom PD3.0 PDOs: Output voltages selectable between 3.6V and 20V
04. Custom markings, and marking methods
05. Special housing colors and output cord colors
06. USB Micro-B connector at end of cord for Quick Charge™ 2.0/3.0 applications.
07. Tighter output voltage tolerance
08. Constant current/ constant voltage (CC/CV) battery charging, with max charge duration timer

† 15.1V PDO is standard on units with date codes after Sept-10-2019.

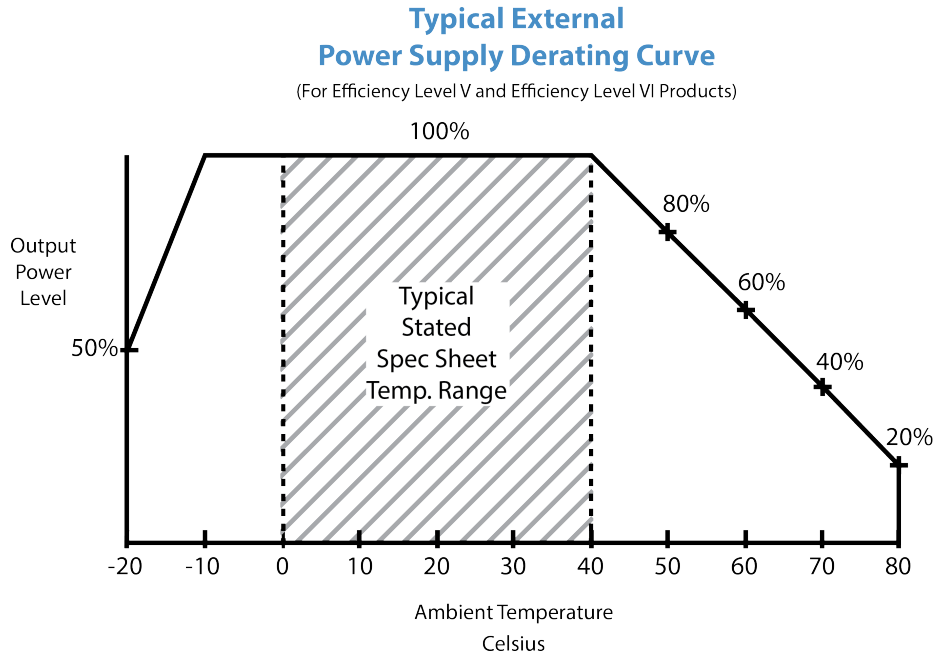
†† VDM functionality is standard on units with date codes after Sept-10-2019.

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DERATING CURVE



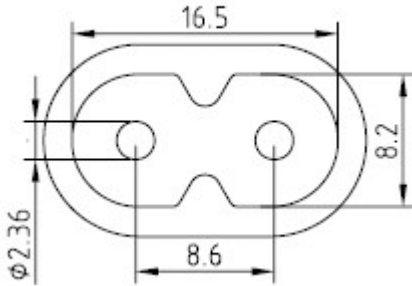
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INPUT CONFIGURATION

Description IEC 60320/C8 AC Inlet connector, Class II, Non-Earth Ground (aka "Figure-8")



Mates with IEC 60320/C7 Plug

Below are standard cordsets which are "not included" (unless stated above); these may be purchased separately or packaged with the power supply. Please contact your Sales Engineer if the style required is not shown below. Many more available in different lengths, colors or cable material.

Standard International IEC 320/C7 Cordsets

2094112M703(R)	Argentina (Type I)	IRAM 2063	IEC 320/C7 ²⁰⁰⁰⁷
5014112M703A(R)	Australian (Type I)	AS 3112	IEC 320/C7 ²⁰⁰⁰⁷
207B4111M8703(R)	Brazil (Type N)	NBR14136	IEC 320/C7 ¹⁸⁰⁰⁶
4533501M8703(R)	China (Type A)	GB 2099.1	IEC 320/C7 ¹⁸³⁰⁶
2074112M703A(R)	European (Type C)	CEE 7/16	IEC 320/C7 ²⁰⁰⁰⁷
2084111M8703(R)	India (Type M)	BS 546	IEC 320/C7 ¹⁸⁰⁰⁶
451J3401M8703(R)	Japan (Type A)	JIS 8303	IEC 320/C7 ¹⁸³⁰⁶
2044112M703A(R)	Korea (Type C)	KS C8305	IEC 320/C7 ²⁰⁰⁰⁷
4511116F703A(R)	N. American (Type A)	NEMA 1-15P	IEC 320/C7 ¹⁸³⁰⁶
4033401M8703A(R)	Taiwan (Type A)	CNS690	IEC 320/C7 ¹⁸³⁰⁶
6104112M703A(R)	UK, Hong Kong, Singapore, Gulf States (Type G)	BS1363	IEC 320/C7 ²⁰⁰⁰⁷

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OUTPUT CONFIGURATION

Common output connector options:


 L Type (Coaxial
5.5x2.5mm plug)

 C Type (Coaxial
5.5x2.1mm plug)

 K Type (Coaxial
3.5x1.3mm plug)

 LL Type (5.5x2.5mm
Locking 760k type)

 CL Type (5.5x2.1mm
Locking S761k type)

 ML2 Type (Molex
housing 43025-0200)

 YL3 Type
(KPPX-3P)


YL4 Type (KPPX-4P)


 EJ1/2/3/4/5 (EIAJ
RC-5320A type
connectors)

 MSB Type (Micro
USB)

 USBC Type (USB
Type C)

 Inquire for custom
design

 For a comprehensive list of options, [click here](#)







Contact GlobTek for your specific requirements or custom solutions.

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Approvals

Logo	Description
No Logo Applicable	CB report IEC60601-1 2005 A1+C1+C2 2016-2-4 and or EN 60601-1:2006 3.1rd Edition 2xMOPP
No Logo	CB Report IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013 (GTM96605-G2-XX)
No Logo Applicable	CB for IEC 62368-1:2014 (Second Edition)
 仅适用于在海拔2000m以下地区使用	CCC to GB4943.1-2011 GB9254-2008 GB17625.1-2012
	CE Certification
	Audio/Video, Information And Communication Technology Equipment - Part 1: Safety Requirements [UL 62368-1:2014 Ed.2]Audio/Video, Information And Communication Technology Equipment - Part 1: Safety Requirements [CSA C22.2#62368-1:2014 Ed.2]
	Information Technology Equipment Safety Part 1: General Requirements (UL 60950-1 Issued: 2007/03/27, Ed: 2 Rev: 2014/10/14) Information Technology Equipment Safety Part 1: General Requirements (CSA C22.2 No. 60950-1 Issued: 2007/03/27 Ed: 2 (R2012) Amd.
	AAMI ES60601-1 Issued: 2012/08/20 Medical Electrical Equipment - Part 1: CAN/CSA-C22.2 No.60601-1:14, Third Edition Issued: 2014/03/01 - Medical Electrical Equipment - Part 1: IEC 60601-1-11 Issued: 2015/01/20 Ed. 2 Medical Elec. Equip.- Part 1-11:
	CHINA SJ/T 11364-2014, China RoHS Chart: http://en.globtek.com/globtek-rohs.php

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Conforms to AAMI STD. ES60601-1 Certified to CAN/CSA STD.C22.2 NO.60601-1	Conforms to AAMI STD. ES60601-1,IEC 60601-1-11 Certified to CAN/CSA STD.C22.2 NO.60601-1
	Declaration ДС № EAЭC N RU Д-US.KA01.B.10453_19 Custom Union of Russia, Belarus and Kazakhstan http://www.globtek.com/redirect/?loc=gost-certificate-eac-declaration
 GlobTek, Inc.	JAPAN TUV R-PSE, Cert. No. JD 50313285, to J60950-1(H26) , J55022(H22),J3000(H25)[DC15? 30V]. Please reference the following website for guidelines on PSE regulations: http://en.globtek.com/importing-ite-and-medical-power-supplies-ac-adaptors-to-japan/
EFFICIENCY LEVEL VI	Efficiency: complies to section 301 of Energy Independence and Security Act (EISA) complies with Energy Star tier 2 (North America), ECP tier 2 (China), MEPS tier 2 (Australia), Code of Conduct (Europe)
LPS	Limited Power Source 60950
	Morocco SDoC declaration http://www.globtek.info/certs/Morocco%20SDoC%20Declaration/
	Australian EMC Australia and New Zealand Regulatory Compliance, Mark (http://rcm.standards.org.au/rcmfaq/rcmfaq.htm
RoHS	Specifications of directive 2011/65/EU Annex VI (ROHS-2) with amendment 2015/863-EU (ROHS-3) http://www.ce-mark.com/Rohs%20final.pdf
	S-Mark Certificate EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011+A2:2013 (http://www.intertek.com/marks/s/)
	Semko S-Mark-Cert-EN60601-1 3.1rd Edition (http://www.intertek.com/marks/s/)

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 10276	Ukraine UKRSeprO (Document: www.globtek.com/html/iso_certificates/GT_Ukraine.pdf
	Japan: Voluntary Control Council for Interference (VCCI)
	WEEE: Complies with EU 2012/19/EU (http://ec.europa.eu/environment/waste/weee/index_en.htm) Mark is on the label or Molded in the case