CUI INC
a bel group

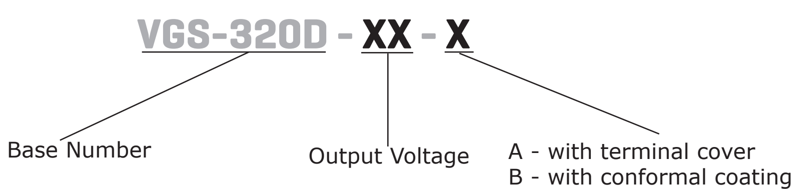
SERIES: VGS-320D | DESCRIPTION: INTERNAL AC-DC POWER SUPPLY

FEATURES
- wide input range (85 ~ 305 VAC)
- available with conformal coating or terminal cover options
- active Power Factor Correction (PFC)
- certified to IEC/EN/UL 62368
- designed to meet IEC/EN 61558 and GB4943
- output over voltage, over current, over temperature, short circuit protection
- CISPR/EN55032 Class B radiated/conducted emissions

MODEL	output voltage		output current	output power	ripple and noise[2]	efficiency[3]
	(Vdc)	range[1] (Vdc)	max (A)	max (W)	max (mVp-p)	typ (%)
VGS-320D-5	5	4.5 ~ 5.5	60.0	300.0	150	84.0
VGS-320D-12	12	10.0 ~ 13.2	26.7	320.4	150	86.5
VGS-320D-15	15	13.5 ~ 18.0	21.4	321.0	150	89.0
VGS-320D-24	24	20.0 ~ 26.4	13.4	321.6	150	88.5
VGS-320D-48	48	41.0 ~ 56.0	6.7	321.6	200	89.0

Notes:
1. Output adjustable via built-in trimpot. The actual adjustment range may extend beyond the values listed and care should be taken to ensure the output voltage and output power do not exceed stated limits.
2. Ripple & noise are measured at 20 MHz BW with 47 μF aluminum electrolytic capacitor and 0.1 μF ceramic capacitor on the output.
3. Measured at 230 Vac.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
voltage	ac input dc input	85 120		305 430	Vac Vdc
frequency		47		63	Hz
current	at 115 Vac at 230 Vac			4.2 2.1	A A
inrush current	at 115 Vac, cold start at 230 Vac, cold start		35 65		A A
power factor	at 115 Vac, full load at 230 Vac, full load	0.98 0.95			

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	5 Vdc output 12 Vdc output 15 Vdc output 24 Vdc output 48 Vdc output			5,000 5,000 5,000 5,000 5,000	μF μF μF μF μF
initial set point accuracy	at full load 5 Vdc output model other Vdc output models		 ±2 ±1		 % %
line regulation	5 Vdc output model 12 & 15 Vdc output model 24 & 48 Vdc output model		±0.5 ±0.3 ±0.2		% % %
load regulation	0%~100% load 5 Vdc output model other output models		 ±1 ±0.5		 % %
hold-up time	at 230 Vac		12		ms
temperature coefficient			±0.03		%/°C

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	5 Vdc output model, auto-recovery, hiccup 12 Vdc output model, auto-recovery, hiccup 15 Vdc output model, auto-recovery, hiccup 24 Vdc output model, auto-recovery, hiccup 48 Vdc output model, auto-recovery, hiccup			7.0 16.2 21.8 32.4 60.0	Vdc Vdc Vdc Vdc Vdc
over current protection	auto-recovery, hiccup	105		150	%
over temperature protection[1]	over temperature protection activation over temperature protection deactivation	 50		85 	°C °C
short circuit protection	continuous, auto-recovery, hiccup				

Note: 1. Over temperature protection thresholds under full load conditions.

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to ground, 1 min, <10mA input to output, 1 min, <10mA output to ground, 1 min, <10mA	2,000 4,000 500			Vac Vac Vac
safety approvals	certified to 62368: IEC, EN, UL designed to meet 61558: EN designed to meet GB4943				
safety class	Class I				
conducted emissions	CISPR32/EN55032 CLASS B				
radiated emissions	CISPR32/EN55032 CLASS B				
harmonic current	IEC/EN61000-3-2 CLASS A				
voltage flicker	IEC/EN61000-3-3				
ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV perf. Criteria A				
radiated immunity	IEC/EN61000-4-3 10V/m perf. Criteria A				
EFT/burst	IEC/EN61000-4-4 ±2KV perf. Criteria A				
surge	IEC/EN61000-4-5 line to line ±1kV/line to ground ±2kV perf. Criteria A				
conducted immunity	IEC/EN61000-4-6 10Vr.m.s perf. Criteria A				
voltage dips and interruptions	IEC/EN61000-4-11 0%, 70% perf. Criteria B				
MTBF	as per MIL-HDBK-217F at 25°C	250,000			hours
RoHS	yes				

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-30		70	°C
storage temperature		-40		85	°C
operating humidity	non-condensing	20		90	%
storage humidity	non-condensing	10		95	%

MECHANICAL

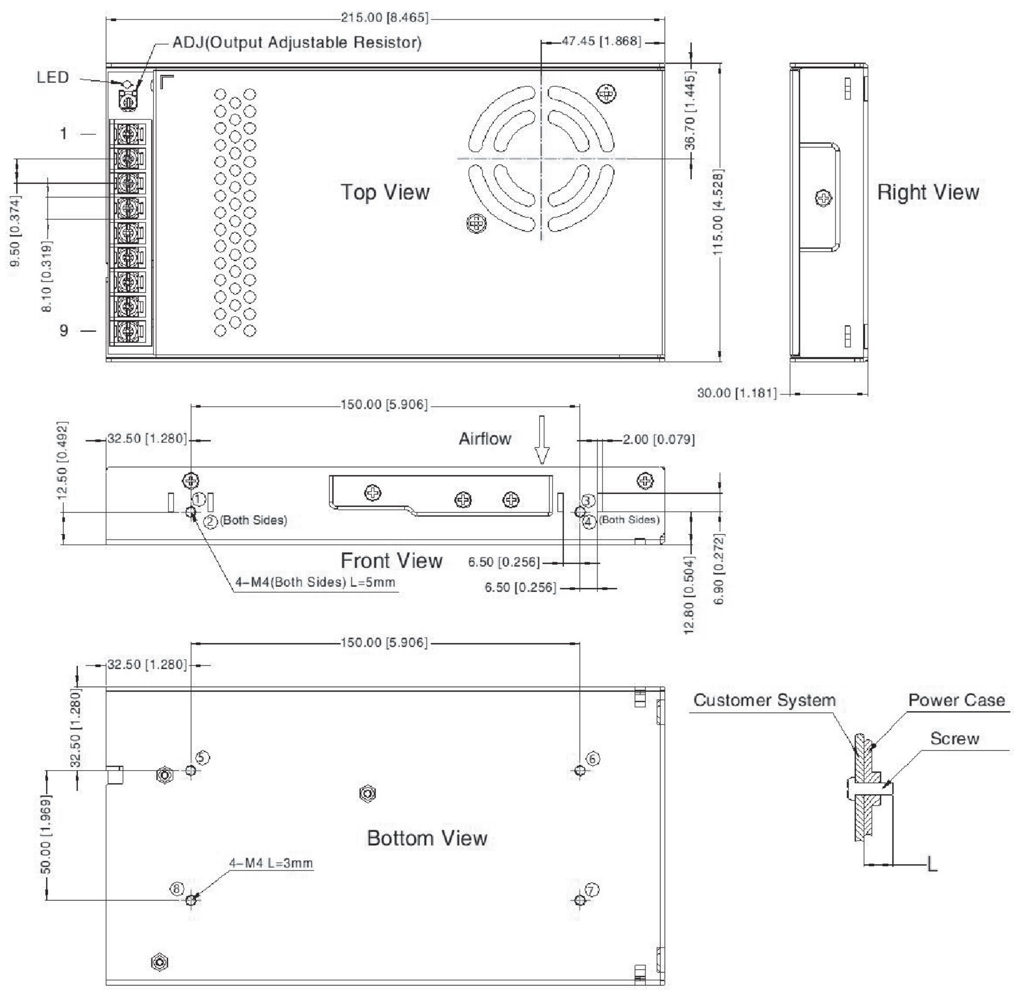
parameter	conditions/description	min	typ	max	units
dimensions	215 x 115 x 30				mm
weight			750		g
cooling	forced air cooling				
case material	metal (AL1100, SGCC)				

MECHANICAL DRAWING

units: mm [inch]
tolerance: ±1.0 [±0.039]
wire range: 22-12 AWG
connector tightening torque: M3.5, 0.8 N·m

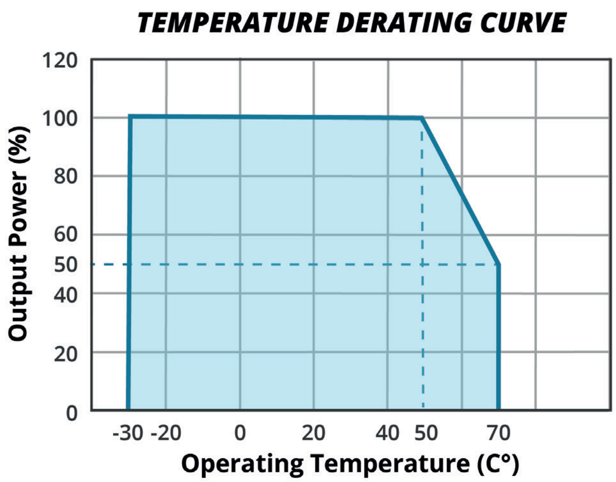
PIN CONNECTIONS	
PIN	Function
1	+Vo
2	+Vo
3	+Vo
4	-Vo
5	-Vo
6	-Vo
7	⏚
8	AC(N)
9	AC(L)

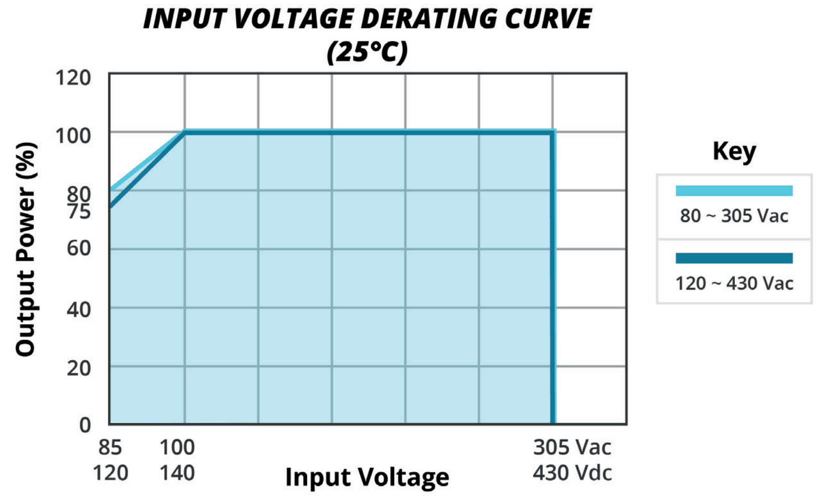
Note: At least one hole position, ①~⑧, must be securely connected to Protective Earth (PE). ⏚



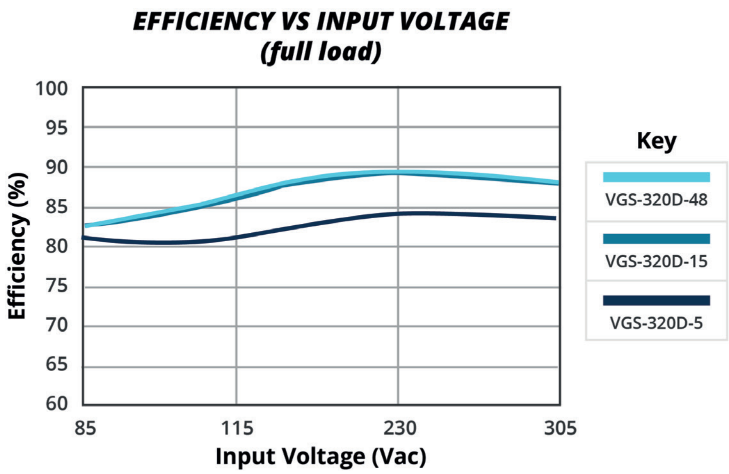
POSITION	SCREW SPEC	L (MAX)	TORQUE (MAX)
①~④	M4	5mm	0.9N·m
⑤~⑧	M4	3mm	0.9N·m

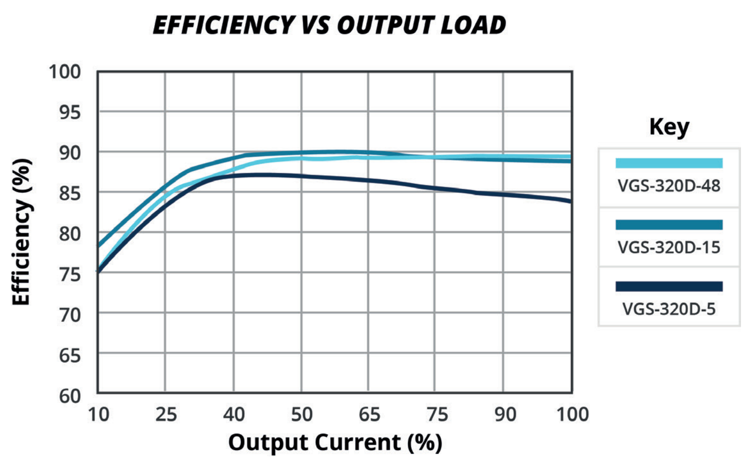
DERATING CURVE





EFFICIENCY CURVES





REVISION HISTORY

rev.	description	date
1.0	initial release	12/14/2020
1.01	derating and efficiency curves updated	01/28/2022
1.02	UKCA mark added	06/10/2022

The revision history provided is for informational purposes only and is believed to be accurate.

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