

DC Electronic Load

PROGRAMMABLE, HIGH PRECISION



PPL SERIES

150V / 500V

15A / 30A / 60A / 120A

150W / 300W / 600W



Remote
Sense

Labview



FEATURES

- 4 basic functions: CC, CV, CR, CP
- 9 basic operation modes: CCL, CCH, CVL, CVH, CRL, CRM, CRH, CPV, CPC
- 24-bit A/D converter and 16-bit D/A converter, 40kHz D/A conversion speed, high resolution & high speed
- Hardware circuit for CR function, faster transient response and higher CR accuracy
- High speed transient test function, max. test frequency 2kHz
- Over current, over voltage, over power, over temperature and reverse voltage protections
- 4.3-inch backlit Segment LCD display
- High speed rotary dial and keypad input
- Auto ON/OFF function
- List Mode function, step 10ms-99999s, free to set numbers of cycles and to be linked to other lists
- Auxiliary functions: short circuit test, battery discharge capacity test
- Save & recall function for frequently used setups
- Intelligent cooling system, ensure high stability during long-time operation under full load
- Standard RS-232 interface, support SCPI commands, support Labview
- Optional RS-232 to USB cable

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SPECIFICATIONS

Model		PPL-8611C2	PPL-8612C2	PPL-8612C3	PPL-8612B1	PPL-8613C3	PPL-8613C4	PPL-8613B2
Rated input (0°C~40°C)								
Voltage		0~150V	0~150V	0~150V	0~500V	0~150V	0~150V	0~500V
Current		1mA~30A	1mA~30A	1mA~60A	1mA~15A	1mA~60A	1mA~120A	1mA~30A
Power *1		150W	300W	300W	300W	600W	600W	600W
MOV@FS current		1.5V	0.82V	1.2V	3.8V	0.9V	1.6V	4.2V
Constant voltage mode (CV)								
Low range (CVL)		0.1~30V	0.1~30V	0.1~30V	0.1~30V	0.1~30V	0.1~30V	0.1~30V
Resolution		1mV	1mV	1mV	1mV	1mV	1mV	1mV
Accuracy		±(0.05%+0.02%FS)						
High range (CVH)		0.10~150V	0.10~150V	0.10~150V	0.10~500V	0.10~150V	0.10~150V	0.10~500V
Resolution		10mV	10mV	10mV	10mV	10mV	10mV	10mV
Accuracy		±(0.05%+0.025%FS)						
Constant current mode (CC)								
Low range (CCL)		0~3A	0~3A	0~6A	0~1.5A	0~6A	0~12A	0~3A
Resolution		1mA	1mA	1mA	1mA	1mA	1mA	1mA
Accuracy		±(0.1%+0.1%FS)						
High range (CCH)		0~30A	0~30A	0~60A	0~15A	0~60A	0~120A	0~30A
Resolution		10mA	10mA	10mA	10mA	10mA	10mA	10mA
Accuracy		±(0.1%+0.15%FS)						
Constant resistance mode (CR) (Input voltage /current≥10%FS)								
Low range (VH CRL)		≈0.06~6Ω	≈0.04~6Ω	≈0.025~3Ω	≈0.3~36Ω	≈0.02~3Ω	≈0.015~1.5Ω	≈0.15~18Ω
Resolution		100uΩ	100uΩ	50uΩ	600uΩ	50uΩ	25uΩ	300uΩ
Accuracy (Impedance)		±(0.5%+0.5%FS)						
Middle range (VH CRM)		≈6~600Ω	≈6~600Ω	≈3~300Ω	≈36~3600Ω	≈3~300Ω	≈1.5~150Ω	≈18~1800Ω
Resolution		2.7us	2.7us	5.4us	0.45us	5.4us	10us	0.90us
Accuracy (Conductance)		±(1%+1%FS)						
High range (VH CRH)		≈60~4000Ω	≈60~4000Ω	≈30~4000Ω	≈360~4000Ω	≈30~4000Ω	≈150~4000Ω	≈180~4000Ω
Resolution *2		0.30us	0.30us	0.20us	0.051us	0.20us	1.2us	0.10us
Accuracy (Conductance)		±(1.5%+1.5%FS)						
Low range (VL CRL)		≈0.06~1.12Ω	≈0.04~1.12Ω	≈0.025~0.6Ω	≈0.3~2.4Ω	≈0.02~0.6Ω	≈0.015~0.3Ω	≈0.15~1.2Ω
Resolution		18uΩ	18uΩ	9.6uΩ	38uΩ	9.6uΩ	4.8uΩ	19uΩ
Accuracy (Impedance)		±(0.5%+0.5%FS)						
Medium range (VL CRM)		≈1.12~112Ω	≈1.12~112Ω	≈0.6~60Ω	≈2.4~240Ω	≈0.6~60Ω	≈0.3~30Ω	≈1.2~120Ω
Resolution		15us	15us	27us	6.8us	27us	54us	14us
Accuracy (Conductance)		±(1%+1%FS)						
High range (VL CRH)		≈11.2~2000Ω	≈11.2~2000Ω	≈6.0~2000Ω	≈24~2000Ω	≈6.0~2000Ω	≈3.0~2000Ω	≈12~2000Ω
Resolution		1.6us	1.6us	3.0us	0.78us	3.0us	6.1us	1.5us
Accuracy (Conductance)		±(1.5%+1.5%FS)						
Constant power mode (CP) (Input voltage /current≥10%FS)								
Range		0~150W	0~300W	0~300W	0~300W	0~600W	0~600W	0~600W
Resolution	P<100W	1mW	1mW	1mW	1mW	1mW	1mW	1mW
	P≥100W	10mW	10mW	10mW	10mW	10mW	10mW	10mW
Accuracy		±(1%+0.1%FS)						

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Rated input (0°C~40°C)								
Voltage		0~150V	0~150V	0~150V	0~500V	0~150V	0~150V	0~500V
Current		1mA~30A	1mA~30A	1mA~60A	1mA~15A	1mA~60A	1mA~120A	1mA~30A
Power *1		150W	300W	300W	300W	600W	600W	600W
MOV@FS current		1.5V	0.82V	1.2V	3.8V	0.9V	1.6V	4.2V
Voltage measurement								
Low range		0~30V	0~30V	0~30V	0~30V	0~30V	0~30V	0~30V
Resolution		1mV	1mV	1mV	1mV	1mV	1mV	1mV
Accuracy		±(0.05%+0.02%FS)						
High range		0~150V	0~150V	0~150V	0~500V	0~150V	0~150V	0~500V
Resolution		10mV	10mV	10mV	10mV	10mV	10mV	10mV
Accuracy		±(0.05%+0.025%FS)						
Current measurement								
Low range		0~3A	0~3A	0~6A	0~1.5A	0~6A	0~12A	0~3A
Resolution		1mA	1mA	1mA	1mA	1mA	1mA	1mA
Accuracy		±(0.1%+0.1%FS)						
High range		0~30A	0~30A	0~60A	0~15A	0~60A	0~120A	0~30A
Resolution		1mA	1mA	1mA	1mA	1mA	10mA	1mA
Accuracy		±(0.1%+0.15%FS)						
Power measurement (Input voltage /current≥10%FS)								
Range		0~150W	0~300W	0~300W	0~300W	0~600W	0~600W	0~600W
Resolution	P<100W	1mW	1mW	1mW	1mW	1mW	1mW	1mW
	P≥100W	10mW	10mW	10mW	10mW	100mW	100mW	100mW
Accuracy		1%+0.1%FS						
Current slew rate								
Range	CCH (/us)	0.1mA ~1.5A	0.1mA ~1.5A	0.1mA ~3A	0.1mA ~0.75A	0.1mA ~3A	0.1mA ~6A	0.1mA ~1.5A
	CCL (/us) *3	0.1mA ~0.15A	0.1mA ~0.15A	0.1mA ~0.33A	0.1mA ~0.075A	0.1mA ~0.33A	0.1mA ~0.6A	0.1mA ~0.15A
Resolution		0.1mA/us	0.1mA/us	0.1mA/us	0.1mA/us	0.1mA/us	0.1mA/us	0.1mA/us
Accuracy *4		3%+10us						
Battery discharge								
Discharge time		1s~100h	1s~100h	1s~100h	1s~100h	1s~100h	1s~100h	1s~100h
Resolution		1s	1s	1s	1s	1s	1s	1s
Accuracy		0.2%+1s						
Battery capacity		3000Ah	3000Ah	6000Ah	1500Ah	6000Ah	12000Ah	3000Ah
Resolution		1mAh	1mAh	1mAh	1mAh	1mAh	1mAh	1mAh
Accuracy		0.3%+0.01Ah						
Discharge voltage range		0.1V~150V	0.1V~150V	0.1V~150V	0.1V~150V	0.1V~150V	0.1V~150V	0.1V~150V
Discharge current resolution		10mA	10mA	10mA	10mA	10mA	10mA	10mA
Short circuit								
CCL		3.6A	3.6A	7.2A	1.8A	7.2A	14.6A	3.6A
CCH		33A	33A	66A	16.5A	66A	132A	33A
CV		0V	0V	0V	0V	0V	0V	0V
VH CRL		0.044Ω	0.027Ω	0.022Ω	0.24Ω	0.015Ω	0.013Ω	0.13Ω
VH CRM		5.6Ω	5.6Ω	2.8Ω	31Ω	2.8Ω	1.4Ω	16Ω
VH CRH		58Ω	58Ω	29Ω	310Ω	29Ω	15Ω	160Ω
VL CRL		0.044Ω	0.027Ω	0.022Ω	0.24Ω	0.015Ω	0.013Ω	0.13Ω
VL CRM		1.1Ω	1.1Ω	0.53Ω	2Ω	0.53Ω	0.26Ω	1.0Ω
VL CRH		10Ω	10Ω	5.3Ω	20Ω	5.3Ω	2.4Ω	10Ω
CPV		165W	315W	315W	315W	630W	630W	630W
CPC		0W	0W	0W	0W	0W	0W	0W

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Rated input (0°C~40°C)							
Voltage	0~150V	0~150V	0~150V	0~500V	0~150V	0~150V	0~500V
Current	1mA~30A	1mA~30A	1mA~60A	1mA~15A	1mA~60A	1mA~120A	1mA~30A
Power *1	150W	300W	300W	300W	600W	600W	600W
MOV@FS current	1.5V	0.82V	1.2V	3.8V	0.9V	1.6V	4.2V
Max. slew rate							
Current	1.5A /us	1.5A /us	3A /us	0.75A /us	3A /us	6A /us	1.5A /us
Voltage	0.2V /us	0.2V /us	0.2V /us	0.02V /us	0.2V /us	0.2V /us	0.02V /us
Open circuit	≥20kΩ	≥20kΩ	≥20kΩ	≥20kΩ	≥20kΩ	≥20kΩ	≥20kΩ
Max. input level							
Current	33A	33A	66A	16.5A	66A	132A	33A
Voltage	175V	175V	175V	550V	175V	175V	550V
Ripple & Noise							
Current (rms/p-p)	3mA/30mA	3mA/30mA	6mA/60mA	5mA/50mA	6mA/60mA	12mA/120mA	5mA/50mA
Voltage (rms)	5mV	5mV	5mV	5mV	5mV	5mV	5mV
Transient operation							
Transient mode	Continuous, Pulse, Toggled						
Frequency range *5	0.01Hz~2kHz						
High/Low time	0~99999ms						
Resolution	250us						
Accuracy	0.2%+10us						
Rising/Falling time	250us~99999ms						
Resolution	250us						
Accuracy	0.2%+10us						
List Mode							
Step time	10ms~99999s						
Resolution	10ms						
Accuracy	0.2%+10us						
No. of steps	1~50						
No. of cycles	0~65535						
Storage	8 Lists						
Expanded function	Chain						
Trigger input							
Trigger level	TTL falling edge						
Trigger pulse width	≥20us						
General							
Protection	Over current, over voltage, over power, over temperature and reverse voltage protections						
Interface	RS-232 interface, support SCPI commands, support Labview						
	Optional RS-232 to USB cable						
Operating environment	0°C~40°C, ≤85%RH						
Storage environment	-10°C~70°C, ≤70%RH						
Power source	AC110V/220V±10% selectable, 50/60Hz						
Accessories	Power cord x1, Operation manual x1, RS-232 cable x1						
Dimension (WxHxD)	215x89x412mm				215x89x507mm		
Weight	5.2kg	6.7kg	6.7kg	6.7kg	9kg	9kg	9kg

*1. Maximum continuous power available is derated linearly from 100% of maximum at 40°C, to 75% of maximum at 50°C.

*2. Conductance (S) = 1 / Resistance (Ω).

*3. The set level is 10 times larger than the slew rate in CCL mode.

*4. The actual transition time is defined as the time required for the input to change from 10% to 90% or from 90% to 10% of the programmed excursion.

*5. Transient frequency depends on the time for high/low level and rising/falling edge.