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Programmable DC Electronic Load



Product No : TPL300W

Product Description

TPL8612 series is high performance programmable DC electronic load. Four basic functions and nine basic operation modes provides sufficient solutions wherever power sources need to be tested. Especially unique CPV and CPC modes greatly improved the functionality of constant power operation. The strong List Mode function, with Min. step 10ms and Max. step 99999s, allows users to set numbers of cycles at free and to link to other lists, facilitating complicated tests. Equipped with RS-232 interface for PC control, SCPI commands and Labview development platform, the TPL series is designed to provide high reliability, great performance and easy operation in research and production of aerospace, ship building, auto electronics, solar battery, fuel cell, etc.

- ★ 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
- ★ Over load, over voltage, over current, over temperature and reverse voltage protections
- ★ High speed transient test function, max. test frequency 2kHz
- ★ List Mode function, Min. step 10ms, Max. step 99999s, free to set numbers of cycles, to be linked to other lists
- ★ Auxiliary function: short circuit test, battery discharge capacity test
- ★ Intelligent cooling system, ensure high stability during long-time operation under full load
- ★ Auto ON/OFF function
- ★ Rotary dial and digital keypad input
- ★ Save & recall function for frequently used setups
- ★ Standard RS-232 interface, optional USB interface
- ★ Support SCPI commands, support Labview

Model	8612C2	8612C3	8612B1
Rated input (0°C~40°C)			
Voltage	0~150V	0~150V	0~500V
Current	1mA~30A	1mA~60A	1mA~15A
Power	300W	300W	300W
MOV@FS current	0.82V	1.2V	3.8V
Constant voltage mode (CV)			
Low range	0.1~30V	0.1~30V	0.1~30V
Resolution	1mV	1mV	1mV
Accuracy	±(0.05%+0.02%FS)	±(0.05%+0.02%FS)	±(0.05%+0.02%FS)
High range	0.1~150V	0.1~150V	0.1~500V
Resolution	10mV	10mV	10mV
Accuracy	±(0.05%+0.025%FS)	±(0.05%+0.025%FS)	±(0.05%+0.025%FS)
Constant current mode (CC)			
Low range	0~3A	0~6A	0~1.5A
Resolution	1mA	1mA	1mA
Accuracy	±(0.1%+0.1%FS)	±(0.1%+0.1%FS)	±(0.1%+0.1%FS)
High range	0~30A	0~60A	0~15A
Resolution	10mA	10mA	10mA
Accuracy	±(0.1%+0.15%FS)	±(0.1%+0.15%FS)	±(0.1%+0.15%FS)
Constant resistance mode (CR) (Input voltage /current≥10%FS)			
Low range (VH CRL)	≈0.04 ~ 6Ω	≈0.025 ~ 3Ω	≈0.3 ~ 36Ω
Resolution	100uΩ	50uΩ	600uΩ
Accuracy (Impedance)	±(1%+0.5%FS)	±(1%+0.5%FS)	±(2.5%+2.5%FS)
Middle range (VH CRM)	≈6 ~ 600Ω	≈3 ~ 300Ω	≈36 ~ 3600Ω
Resolution	2.7us	5.4us	0.45us
Accuracy (Conductance)	±(1%+0.5%FS)	±(1%+0.5%FS)	±(5%+2.5%FS)
High range (VH CRH)	≈60 ~ 4000Ω	≈30 ~ 4000Ω	≈360 ~ 4000Ω
Resolution	0.30us	0.20us	0.051us
Accuracy (Conductance)	±(5%+5%FS)	±(5%+5%FS)	±(5%+5%FS)
Low range (VL CRL)	≈0.04 ~ 1.12Ω	≈0.025 ~ 0.6Ω	≈0.3 ~ 2.4Ω
Resolution	18uΩ	9.6uΩ	38uΩ

Accuracy (Impedance)		$\pm(1\%+0.5\%FS)$	$\pm(1\%+0.5\%FS)$	$\pm(2.5\%+2.5\%FS)$
Medium range (VL CRM)		$\approx 1.12 \sim 112\Omega$	$\approx 0.6 \sim 60\Omega$	$\approx 2.4 \sim 240\Omega$
Resolution		15us	27us	6.8us
Accuracy (Conductance)		$\pm(5\%+2.5\%FS)$	$\pm(5\%+2.5\%FS)$	$\pm(5\%+2.5\%FS)$
High range (VL CRH)		$\approx 11.2 \sim 2000\Omega$	$\approx 6.0 \sim 2000\Omega$	$\approx 24 \sim 2000\Omega$
Resolution		1.6us	3.0us	0.78us
Accuracy (Conductance)		$\pm(5\%+2.5\%FS)$	$\pm(5\%+2.5\%FS)$	$\pm(5\%+2.5\%FS)$
Constant power mode (CP) (Input voltage /current$\geq 10\%FS$)				
Range		0~300W	0~300W	0~300W
Resolution	P<100W	1mW	1mW	1mW
	P \geq 100W	10mW	10mW	10mW
Accuracy		$\pm(1\%+0.1\%FS)$	$\pm(1\%+0.1\%FS)$	$\pm(1\%+0.1\%FS)$
Rated input (0°C~40°C)				
Voltage		0~150V	0~150V	0~500V
Current		1mA~30A	1mA~60A	1mA~15A
Power		300W	300W	300W
Voltage measurement				
Low range		0~30V	0~30V	0~30V
Resolution		1mV	1mV	1mV
Accuracy		$\pm(0.05\%+0.02\%FS)$	$\pm(0.05\%+0.02\%FS)$	$\pm(0.05\%+0.02\%FS)$
High range		0~150V	0~150V	0~500V
Resolution		10mV	10mV	10mV
Accuracy		$\pm(0.05\%+0.025\%FS)$	$\pm(0.05\%+0.025\%FS)$	$\pm(0.05\%+0.025\%FS)$
Current measurement				
Low range		0~3A	0~6A	0~1.5A
Resolution		1mA	1mA	1mA
Accuracy		$\pm(0.1\%+0.1\%FS)$	$\pm(0.1\%+0.1\%FS)$	$\pm(0.1\%+0.1\%FS)$
High range		0~30A	0~60A	0~15A
Resolution		1mA	1mA	1mA
Accuracy		$\pm(0.1\%+0.15\%FS)$	$\pm(0.1\%+0.15\%FS)$	$\pm(0.1\%+0.15\%FS)$
Power measurement (Input voltage /current$\geq 10\%FS$)				
Range		0~300W	0~300W	0~300W
Resolution	P<100W	1mW	1mW	1mW

	P≥100W	10mW	10mW	10mW
Accuracy		±(1%+0.1%FS)	±(1%+0.1%FS)	±(1%+0.1%FS)
Current slew rate				
Range	CCH (/us)	0.1mA ~1.5A	0.1mA ~3A	0.1mA ~0.75A
	CCL (/us)	0.1mA ~0.15A	0.1mA ~0.33A	0.1mA ~0.075A
Resolution		0.1mA/us	0.1mA/us	0.1mA/us
Accuracy		3%+10us	3%+10us	3%+10us
Battery discharge				
Discharge time		1s~100h	1s~100h	1s~100h
Resolution		1s	1s	1s
Accuracy		0.2%+1s	0.2%+1s	0.2%+1s
Battery capacity		3000Ah	6000Ah	1500Ah
Resolution		1mAh	1mAh	1mAh
Accuracy		0.3%+0.01Ah	0.3%+0.01Ah	0.3%+0.01Ah
Discharge range	voltage	0.1V~150V	0.1V~150V	0.1V~150V
Discharge resolution	current	10mA	10mA	10mA
Short circuit				
CCL		3.6A	7.2A	1.8A
CCH		33A	66A	16.5A
CV		0V	0V	0V
VH CRL		0.027Ω	0.022Ω	0.24Ω
VH CRM		5.6Ω	2.8Ω	31Ω
VH CRH		58Ω	29Ω	310Ω
VL CRL		0.027Ω	0.022Ω	0.24Ω
VL CRM		1.1Ω	0.53Ω	2Ω
VL CRH		10Ω	5.3Ω	20Ω
CPV		315W	315W	315W
CPC		0W	0W	0W
Rated input (0°C~40°C)				
Voltage		0~150V	0~150V	0~500V
Current		1mA~30A	1mA~60A	1mA~15A
Power		300W	300W	300W
Max. slew rate				

Current	1.5A /us	3A /us	0.75A /us
Voltage	0.2V/us	0.2V/us	0.02V/us
Open circuit	≥20kΩ	≥20kΩ	≥20kΩ
Max. input level			
Current	33A	66A	16.5A
Voltage	175V	175V	550V
Ripple&Noise			
Current (rms/p-p)	3mA/30mA	6mA/60mA	5mA/50mA
Voltage (rms)	5mV	5mV	5mV
Transient operation			
Transient mode	Continuous, Pulse, Toggled		
Frequency range	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 step	1~50		
Cycle	0~65535		
Storage	8Lists		
Expanded function	Chain		
Trigger input			
Trigger level	TTLfalling edge		
Trigger pulse width	≥20us		
General			
Protection	Over current, over voltage, over power, over temperature and reverse polarity protections		
Programming interface	USB or RS-232 interface, support SCPI commands, support Labview		
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	215x89x412mm	215x89x412mm	215x89x412mm
Weight	6.7kg	6.7kg	6.7kg

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