

Product Datasheet - Technical Specifications



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IT-M3140

Programmable DC Power Supply



Your Power Testing Solution



IT-M3140 Programmable DC Power Supply is specially designed for testing, production, R&D lab and ATE integration. It is only 2U half rack, but can output power up to 1850W and 3000W, and voltage output from 30V to 1200V. It has three output modes of constant voltage, constant current and constant power. Automatic wide-range output enables it to achieve a wider output voltage and current range at full power output, meeting a wider range of testing requirements and greatly saving equipment purchase costs.

Not only that, IT-M3140 is a DC power supply integrating high stability, fast response (<1ms), high-level protection functions and LIST programmable functions. This series is equipped with a standard USB/LAN interface, and can be used with ITECH's free PV3140 software to easily realize remote control and data storage, and is easy to integrate. IT-M3140 can be widely used in semiconductor device ATE, burn-in integration, testing and certification, power module and automotive electronics and other fields.

FEATURE

- Only 2U half rack, 1850W/3000W
- 30V-1200V, 150A
- Three output modes: CV/CC/CP
- CC/CV priority to avoid current overshoot
- Fast dynamic response: <1ms
- According to the voltage and current waveform output programmed by LIST, the rising and falling slopes are adjustable
- Fold back, UVP/OVP, UCP/OC, OPP, OTP, inhibit protection, more secure and reliable
- The Sense protection circuit combined with software and hardware can effectively detect Sense reverse connection and missing connection, and protect the DUT
- Standard USB/LAN, optional RS232 & analog, GPIB, easy to integrate

APPLICATION



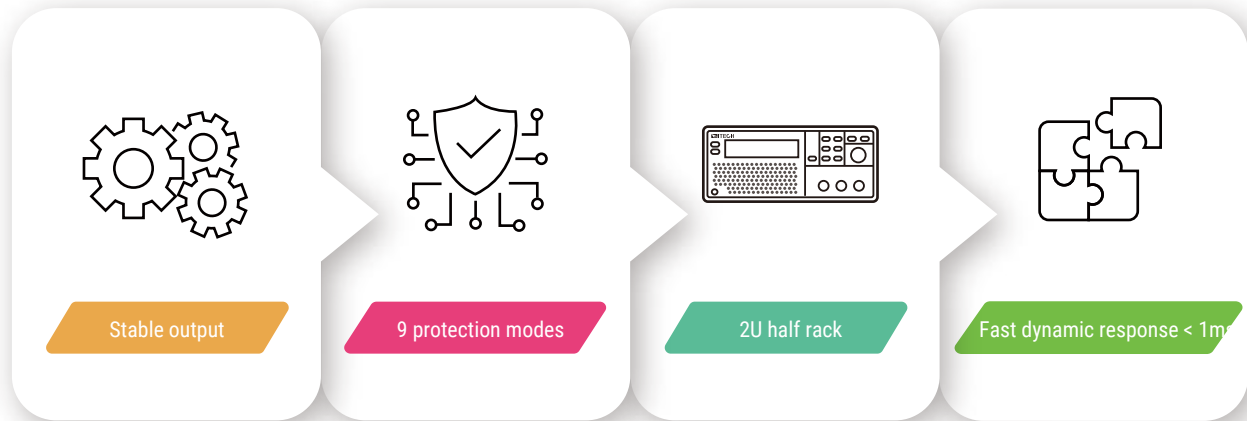
Your Power Testing Solution

IT-M3140 Series Programmable DC Power Supply

Model	Parameter Specifications (3000W)	Model	Parameter Specifications (1850W)
IT-M3141	30V/150A/3000W	IT-M3131E	30V/150A/1850W
IT-M3142	80V/80A/3000W	IT-M3132E	80V/80A/1850W
IT-M3143	150V/40A/3000W	IT-M3133E	150V/40A/1850W
IT-M3144	300V/20A/3000W	IT-M3134E	300V/20A/1850W
IT-M3145	600V/10A/3000W	IT-M3135E	600V/10A/1850W
IT-M3146	1000V/6A/3000W	IT-M3136E	1000V/6A/1850W
IT-M3147	1200V/5A/3000W	IT-M3137E	1200V/5A/1850W

Size: 2U half rack

AC input range (single-phase: L, N, PE) : A. 110Vac±10%, power down to 1500W B. 192Vac~264Vac, full power output of all models

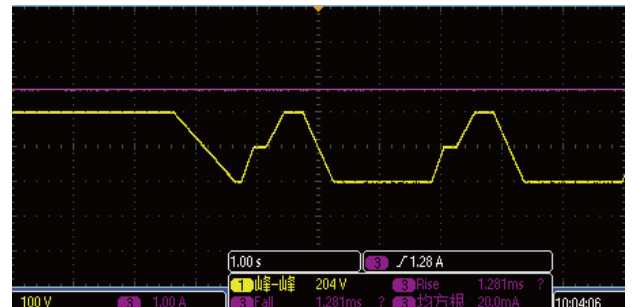


Optional accessories

Description	Model	
Rack mounting kit	IT-E158A	For 2 units installed side by side in ITECH standard cabinet
	IT-E158B	For 2 units installed side by side in non-ITECH cabinet
	IT-E158C	For single unit installed in ITECH standard cabinet
	IT-E158D	For single unit installed in non-ITECH cabinet
Communication interfaces	IT-E176	GPIO communication card
	IT-E177	RS232 & Analog card

LIST mode simulates various power supply disturbance waveforms

IT-M3140 series provides LIST programming mode. In this mode, users can generate arbitrary DC voltage disturbance waveforms, such as instantaneous voltage drop or voltage rise slowly, by setting parameters such as working steps (max100 steps), output voltage/current per step, single step duration (0.001s-3600s), rising and falling slopes, etc., to fully verify the anti-interference performance of DC loads. It is suitable for testing products such as DC-DC power modules, motor drivers, and battery-powered household appliances.

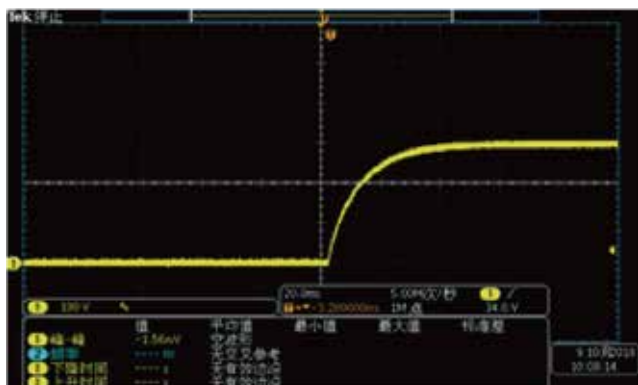


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IT-M3140 Series Programmable DC Power Supply

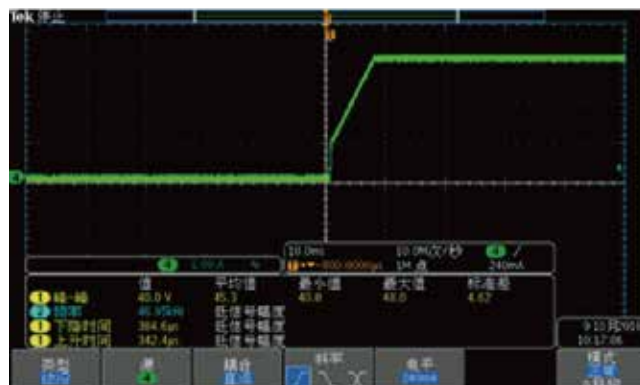
CC/CV priority function to effectively suppress current overshoot

The IT-M3140 series has a CC/CV priority function to help users solve a variety of demanding problems in long-term test applications. By changing the CC/CV priority and loop speed settings, users can obtain voltage high speed mode or current no overshoot mode, making the test more flexible, since it is suitable for current-sensitive laser testing, and can also meet the application scenario of rapid voltage dips.



Start-up inrush current over current range, high-speed build-up voltage electric

CV Priority

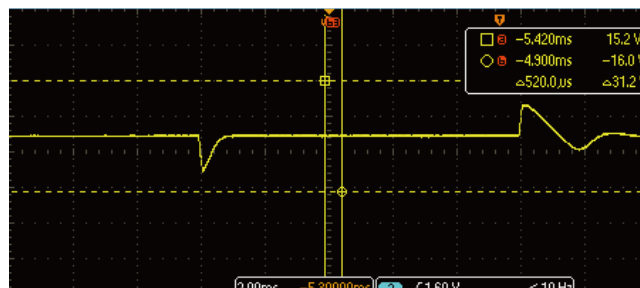


Seamless battery charging and discharging at high speed with no overshoot switching

CC Priority

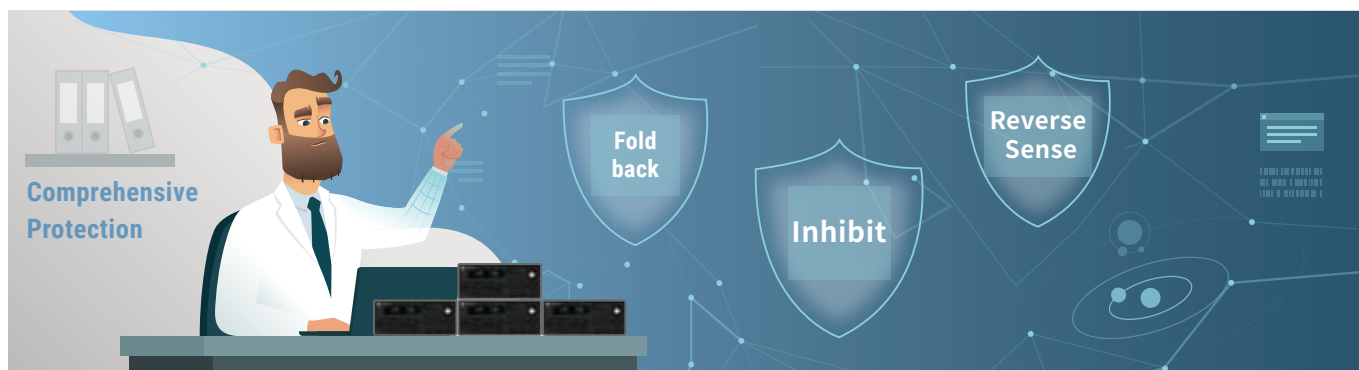
Fast dynamic response < 1ms

IT-M3140 series has high speed dynamic response characteristics, when the external load fluctuations, the power supply can quickly restore stability within <1ms, thus makes the test more reliable.



9 protection modes to enhance test security

To further enhance the reliability and safety of product testing, the IT-M3140 series offers nine protection modes. In the traditional over / under voltage, over / under current, over power protection on the basis of the additional Fold back, Inhibit and Sense reverse connection protection function, so that not only can effectively reduce the power mode switching instantaneous overshoot, while avoiding the sense wrong connection or leakage caused by test abnormalities. With the Inhibit output ban / interlock function, making the test more secure and reliable.



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IT-M3140 Series Programmable DC Power Supply

Specification

		IT-M3141		IT-M3131E	IT-M3142		IT-M3132E
Rated Output Value	Voltage	0 ~ 30V			0 ~ 80V		
	Current	0 ~ 150A			0 ~ 80A		
	Power	0 ~ 3000W		0 ~ 1850W	0 ~ 3000W		0 ~ 1850W
Power Regulation (%of Output+Offset)	Voltage	$\leq 0.005\% + 2\text{mV}$			$0.001\% + 5\text{mV}$		
	Current	$\leq 50\text{mA}$			$\leq 30\text{mA}$		
Power Regulation (%of Output+Offset)	Voltage	$\leq 0.005\% + 2\text{mV}$			$0.004\% + 5\text{mV}$		
	Current	$\leq 70\text{mA}$			$\leq 40\text{mA}$		
Setup Resolution	Voltage	1mV			1mV		
	Current	10mA			1mA		
	Power	0.1W			0.1W		
Readback Resolution	Voltage	1mV			1mV		
	Current	10mA			1mA		
Setting Accuracy	Voltage	$\leq 0.03\% + 0.02\% \text{F.S.}$			$\leq 0.03\% + 0.02\% \text{F.S.}$		
	Current	$\leq 0.1\% + 0.1\% \text{F.S.}$			$\leq 0.1\% + 0.1\% \text{F.S.}$		
	Power	$\leq 0.5\% \text{F.S.}$			$\leq 0.5\% \text{F.S.}$		
Readback Accuracy	Voltage	$\leq 0.03\% + 0.02\% \text{F.S.}$			$\leq 0.03\% + 0.02\% \text{F.S.}$		
	Current	$\leq 0.1\% + 0.1\% \text{F.S.}$			$\leq 0.1\% + 0.1\% \text{F.S.}$		
	Power	$\leq 0.5\% \text{F.S.}$			$\leq 0.5\% \text{F.S.}$		
Ripple (20Hz-20Mhz)	Voltage	typical values $\leq 70\text{mV}$ (MAX: $\leq 70\text{mV}$)			typical values $\leq 140\text{mV}$ (MAX: $\leq 140\text{mV}$)		
	Current	typical values $\leq 150\text{mA}$ (MAX: $\leq 150\text{mA}$)			typical values $\leq 80\text{mA}$ (MAX: $\leq 80\text{mA}$)		
Setting Temperature Coefficient (%of Output+Offset)/ °C	Current	$\leq 20\text{PPM}/^\circ\text{C}$			$\leq 20\text{PPM}/^\circ\text{C}$		
	Voltage	$\leq 50\text{PPM}/^\circ\text{C}$			$\leq 50\text{PPM}/^\circ\text{C}$		
Readback Temperature Coefficient (%of Output+Offset)/ °C	Current	$\leq 20\text{PPM}/^\circ\text{C}$			$\leq 20\text{PPM}/^\circ\text{C}$		
	Voltage	$\leq 50\text{PPM}/^\circ\text{C}$			$\leq 50\text{PPM}/^\circ\text{C}$		
Time (mS)	Voltage	$\leq 60\text{mS}$			$\leq 60\text{mS}$		
Time (mS)	Voltage	$\leq 150\text{mS}$			$\leq 150\text{mS}$		
Time (mS)	Voltage	$\leq 2\text{S}$			$\leq 2\text{S}$		
Time (mS)	Voltage	$\leq 200\text{mS}$			$\leq 200\text{mS}$		
Dynamic Mode	Voltage	$\leq 1\text{mS}$			$\leq 1\text{mS}$		
AC Input	Voltage	220V $\pm 20\%$ (3000W) 110V $\pm 10\%$ (derating to 1500W)		220V $\pm 20\%$ (1850W) 110V $\pm 10\%$ (derating to 1500W)	220V $\pm 20\%$ (3000W) 110V $\pm 10\%$ (derating to 1500W)		220V $\pm 20\%$ (1850W) 110V $\pm 10\%$ (derating to 1500W)
	Frequency	47-63Hz			47-63Hz		
Setup Stability-30min (%of Output +Offset)	Voltage	$0.01\% + 1\text{mV}$			$0.01\% + 8\text{mV}$		
	Current	$0.03\% + 50\text{mA}$			$0.04\% + 20\text{mA}$		
Setup Stability-8h (%of Output +Offset)	Voltage	$0.01\% + 2\text{mV}$			$0.01\% + 10\text{mV}$		
	Current	$0.03\% + 55\text{mA}$			$0.04\% + 25\text{mA}$		
Readback Stability-30min (%of Output +Offset)	Voltage	$0.01\% + 1\text{mV}$			$0.01\% + 8\text{mV}$		
	Current	$0.03\% + 50\text{mA}$			$0.04\% + 20\text{mA}$		
Readback Stability-8h (%of Output +Offset)	Voltage	$0.01\% + 2\text{mV}$			$0.01\% + 10\text{mV}$		
	Current	$0.03\% + 55\text{mA}$			$0.04\% + 25\text{mA}$		
Efficiency		90%			91%		
Remote Sense Compensation Voltage		$\leq 3\text{V}$			$\leq 3\text{V}$		
Command Response Time		5ms			5ms		
Power Factor		0.99			0.99		
Maximum Input Current		20A	18A		20A	18A	
Maximum Input Apparent Power		3700VA	2300VA		3700VA	2300VA	
Isolation(output to ground)		600VDC			600VDC		
Isolation(input to ground)		2200VDC			2200VDC		
Dimension(mm)		255W*530D*109H			255W*530D*109H		
Net.Weight		(8 ± 1) kg			(8 ± 1) kg		

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IT-M3140 Series Programmable DC Power Supply

Specification

		IT-M3143	IT-M3133E	IT-M3144	IT-M3134E
Rated Output Value	Voltage	0 ~ 150V		0 ~ 300V	
	Current	0 ~ 40A		0 ~ 20A	
	Power	0 ~ 3000W 0 ~ 1850W		0 ~ 3000W 0 ~ 1850W	
Power Regulation (%of Output+Offset)	Voltage	0.001%+6mV		0.001%+10mV	
	Current	≤20mA		≤8mA	
Power Regulation (%of Output+Offset)	Voltage	0.004%+8mV		0.004%+20mV	
	Current	≤35mA		≤10mA	
Setup Resolution	Voltage	10mV		10mV	
	Current	1mA		1mA	
	Power	0.1W		0.1W	
Readback Resolution	Voltage	10mV		10mV	
	Current	1mA		1mA	
Setting Accuracy	Voltage	≤0.03% + 0.02%F.S.		≤0.03% + 0.02%F.S.	
	Current	≤0.1% + 0.1%F.S.		≤0.1% + 0.1%F.S.	
	Power	≤0.5%F.S.		≤0.5%F.S.	
Readback Accuracy	Voltage	≤0.03% + 0.02%F.S.		≤0.03% + 0.02%F.S.	
	Current	≤0.1% + 0.1%F.S.		≤0.1% + 0.1%F.S.	
	Power	≤0.5%F.S.		≤0.5%F.S.	
Ripple (20hz-20Mhz)	Voltage	typical values≤150 mV(MAX: ≤150mV)		typical values≤300 mV(MAX: ≤300mV)	
	Current	typical values≤40mA(MAX: ≤40mA)		typical values≤20mA(MAX: ≤20mA)	
Setting Temperature Coefficient (%of Output+Offset)/ °C	Current	≤20PPM/ °C		≤20PPM/ °C	
	Voltage	≤50PPM/ °C		≤50PPM/ °C	
Readback Temperature Coefficient (%of Output+Offset)/ °C	Current	≤20PPM/ °C		≤20PPM/ °C	
	Voltage	≤50PPM/ °C		≤50PPM/ °C	
Time (mS)	Voltage	≤60mS		≤60mS	
Time (mS)	Voltage	≤150mS		≤150mS	
Time (mS)	Voltage	≤4S		≤5S	
Time (mS)	Voltage	≤200mS		≤200mS	
Dynamic Mode	Voltage	≤1mS		≤1mS	
AC Input	Voltage	220V±20%(3000W) 110V±10%(derating to 1500W)		220V±20%(3000W) 110V±10%(derating to 1500W)	
	Frequency	47-63Hz		50/60Hz	
Setup Stability-30min (%of Output +Offset)	Voltage	0.01%+16mV		0.01%+60mV	
	Current	0.04%+10mA		0.04%+5mA	
Setup Stability-8h (%of Output +Offset)	Voltage	0.01%+20mV		0.01%+75mV	
	Current	0.04%+12mA		0.04%+6mA	
Readback Stability-30min (%of Output +Offset)	Voltage	0.01%+16mV		0.01%+60mV	
	Current	0.04%+10mA		0.04%+5mA	
Readback Stability-8h (%of Output +Offset)	Voltage	0.01%+20mV		0.01%+75mV	
	Current	0.04%+12mA		0.04%+6mA	
Efficiency		91%		91%	
Remote Sense Compensation Voltage		≤3V		≤3V	
Command Response Time		5ms		5ms	
Power Factor		0.99		0.99	
Maximum Input Current		20A	18A	20A	18A
Maximum Input Apparent Power		3700VA	2300VA	3700VA	2300VA
Isolation(output to ground)		600VDC		600VDC	
Isolation(input to ground)		2200VDC		2200VDC	
Dimension(mm)		255W*530D*109H		255W*530D*109H	
Net.Weight		(8±1) kg		(8±1) kg	

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IT-M3140 Series Programmable DC Power Supply

Specification

		IT-M3145		IT-M3135E		IT-M3146		IT-M3136E		IT-M3147		IT-M3137E	
Rated Output Value	Voltage	0~600V				0~1000V				0~1200V			
	Current	0~10A				0~6A				0~5A			
	Power	0~3000W		0~1850W		0~3000W		0~1850W		0~3000W		0~1850W	
Power Regulation (%of Output+Offset)	Voltage	0.001%+20mV				0.002%+20mV				0.002%+20mV			
	Current	≤4mA				≤2mA				≤2mA			
Power Regulation (%of Output+Offset)	Voltage	0.004%+30mV				0.005%+50mV				0.005%+50mV			
	Current	≤7mA				≤4mA				≤4mA			
Setup Resolution	Voltage	10mV				0.1V				0.1V			
	Current	1mA				0.1mA				0.1mA			
	Power	0.1W				0.1W				0.1W			
Readback Resolution	Voltage	10mV				0.1V				0.1V			
	Current	1mA				0.1mA				0.1mA			
Setting Accuracy	Voltage	≤0.03% + 0.02%F.S.				≤0.03% + 0.02%F.S.				≤0.03% + 0.02%F.S.			
	Current	≤0.1% + 0.1%F.S.				≤0.1% + 0.1%F.S.				≤0.1% + 0.1%F.S.			
	Power	≤0.5%F.S.				≤0.5%F.S.				≤0.5%F.S.			
Readback Accuracy	Voltage	≤0.03% + 0.02%F.S.				≤0.03% + 0.02%F.S.				≤0.03% + 0.02%F.S.			
	Current	≤0.1% + 0.1%F.S.				≤0.1% + 0.1%F.S.				≤0.1% + 0.1%F.S.			
	Power	≤0.5%F.S.				≤0.5%F.S.				≤0.5%F.S.			
Ripple (20hz-20Mhz)	Voltage	typical values≤600 mV(MAX: ≤600mV)				typical values≤1V(MAX: ≤1V)				typical values≤1V(MAX: ≤1V)			
	Current	typical values≤10mA(MAX: ≤10mA)				typical values≤6mA(MAX: ≤6mA)				typical values≤6mA(MAX: ≤6mA)			
Setting Temperature Coefficient (%of Output+Offset)/ °C	Current	≤20PPM/ °C				≤20PPM/ °C				≤20PPM/ °C			
Readback Temperature Coefficient (%of Output+Offset)/ °C	Voltage	≤50PPM/ °C				≤50PPM/ °C				≤50PPM/ °C			
	Current	≤20PPM/ °C				≤20PPM/ °C				≤20PPM/ °C			
Time (mS)	Voltage	≤60mS				≤60mS				≤60mS			
	Voltage	≤150mS				≤150mS				≤150mS			
Time (mS)	Voltage	≤5S				≤5S				≤5S			
Time (mS)	Voltage	≤200mS				≤200mS				≤200mS			
Dynamic Mode	Voltage	≤1mS				≤1mS				≤1mS			
AC Input	Voltage	220V±20%(3000W) 110V±10%(derating to 1500W)		220V±20%(1850W) 110V±10%(derating to 1500W)		220V±20%(3000W) 110V±10%(derating to 1500W)		220V±20%(1850W) 110V±10%(derating to 1500W)		220V±20%(3000W) 110V±10%(derating to 1500W)		220V±20%(1850W) 110V±10%(derating to 1500W)	
	Frequency	47-63Hz				50/60Hz				50/60Hz			
Setup Stability-30min (%of Output +Offset)	Voltage	0.01%+80mV				0.01%+60mV				0.01%+60mV			
	Current	0.04%+2mA				0.04%+2mA				0.04%+1mA			
Setup Stability-8h (%of Output +Offset)	Voltage	0.01%+100mV				0.01%+100mV				0.01%+100mV			
	Current	0.04%+3mA				0.04%+3mA				0.04%+2mA			
Readback Stability-30min (%of Output +Offset)	Voltage	0.01%+80mV				0.01%+60mV				0.01%+60mV			
	Current	0.04%+2mA				0.04%+2mA				0.04%+1mA			
Readback Stability-8h (%of Output +Offset)	Voltage	0.01%+100mV				0.01%+100mV				0.01%+100mV			
	Current	0.04%+3mA				0.04%+3mA				0.04%+2mA			
Efficienc		90%				91%				89%			
Remote Sense Compensation Voltage		≤6V				≤6V				≤6V			
Command Response Time		5ms				5ms				5ms			
Power Factor		0.99				0.99				0.99			
Maximum Input Current		20A	18A			20A	18A			20A	18A		
Maximum Input Apparent Power		3700VA	2300VA			3700VA	2300VA			3700VA	2300VA		
Isolation(output to ground)		600VDC				1000VDC				1000VDC			
Isolation(input to ground)		2200VDC				2200VDC				2200VDC			
Dimension(mm)		255W*530D*109H				255W*530D*109H				255W*530D*109H			
Net.Weight		(8±1) kg				(8±1) kg				(8±1) kg			