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YOUR POWER TESTING SOLUTION

Product

IT-M3300 Regenerative DC Electronic Load



IT-M3300 Regenerative DC Electronic Load

APPLICATIONS

- Battery discharge test
- Multi-channel power supply test
- Semiconductor aging test

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High efficient power regeneration

Battery discharge test

8 operation modes

Independent control of multiple channels



IT-M3300 regenerative DC electronic load can not only simulate various load characteristics, but also can feed back electrical energy to the local grid instead of heat. With high power density design, it can provide up to 800W power absorption with tiny body of only 1U half-rack. Its flexible modular architecture design can meet the test requirement of customers with different current and power. At the same time, it has high-precision output and measurement, and has made a number of safety designs for the test. It is suitable for test applications such as various types of battery discharge, multi-channel power supply, and semiconductor aging.

Feature

- 1U half rack, high power density
- Battery discharge test
- High efficient power regeneration
- 8 operating modes： CC/CV/CP/CR/CV+CC/CC+CR/CV+CR/ CV+CC+CP+CR
- Independent control of multi-channels, implement synchronization or proportional tracking
- Parallel connection, up to 16 units
- High-speed measurement, keep 10 times / s update rate even connecting 16 stand-alone units
- Adjustable current rise/fall time
- List programming
- Various protection such as OCP/UCP/OVP/UVP/OPP, over heat protection, grid fault protection and fault storage, foldback,Power-off protection, sense abnormal protection
- Temperature measurement function, over temperature protection
- Automatic detection of power grid state to realize reliable grid connection
- Precharge function to prevent overshoot of DC loading current
- Anti-reverse protection function by optional IT-E118
- Five optional interfaces, supporting RS232, CAN, LAN, GPIB, USB_TMC, USB_VCP、RS485, analog and IO communication

Model	Voltage	Current	Power	Model	Voltage	Current	Power
IT-M3312	60V	30A	200W	IT-M3314	300V	6A	200W
IT-M3322	60V	30A	400W	IT-M3324	300V	6A	400W
IT-M3332	60V	30A	800W	IT-M3334	300V	6A	800W
IT-M3313	150V	12A	200W	IT-M3315	600V	3A	200W
IT-M3323	150V	12A	400W	IT-M3325	600V	3A	400W
IT-M3333	150V	12A	800W	IT-M3335	600V	3A	800W

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IT-M3300 Regenerative DC Electronic Load

Applications

Burn-in testing solution for multi-channel power supply module

Burning test of LED driver, DC-DC or AC-DC modules' burn-in test.

Semi-conductor power IC, relay, and wire harness, etc.

Power regulator, smart electronic switch IPS, and burn-in test of automotive central control box

Working condition simulation, verification of electrical performance of products.

Electrical performance test of mobile phone main board, adapter performance test, small DC generator test

Discharging test of various types of batteries

Battery capacity test, screening of disqualified batteries



1U half rack, mini size

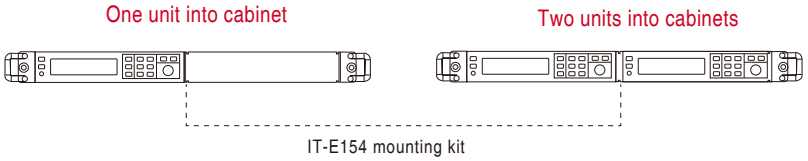
IT-M3300 has mini size of 1U half rack and is able to output 800W. It has not only the high density but also the high resolution, accuracy, stability and etc. The output voltage can reach 600V and the output current can reach 30A. There're 12 models for IT-M3300 series, with design of wide range output, with one unit, it can cover a wide range of application requirements.



Module design, flexible combination

IT-M3300, with module design, without additional spare parts, it can be stacked as easy as the toy bricks. With IT-E154 rack installation kit, users can easily install one or multiple instruments into a standard 19-inch cabinet.



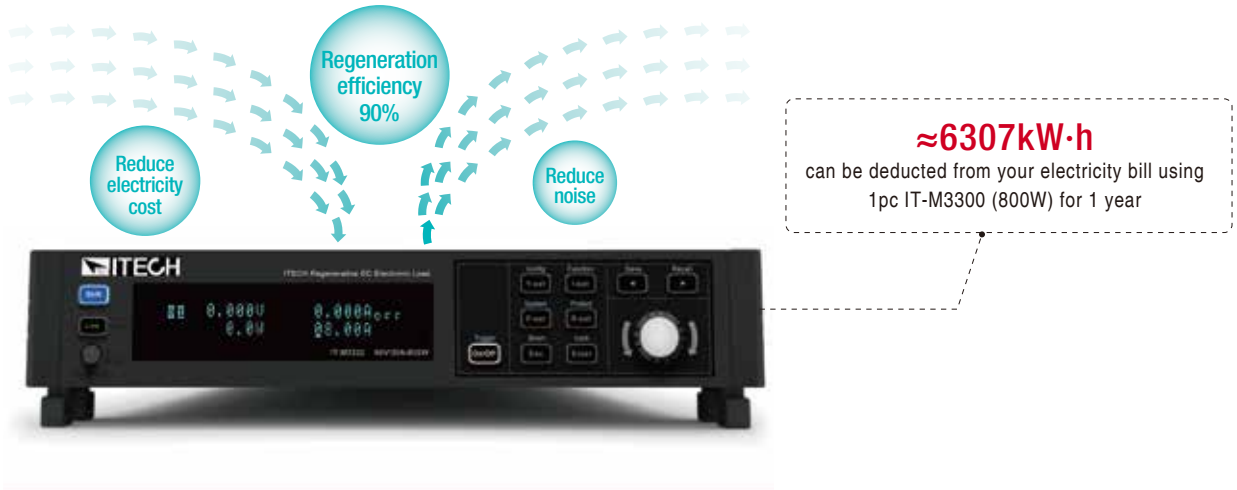


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High energy recovery efficiency

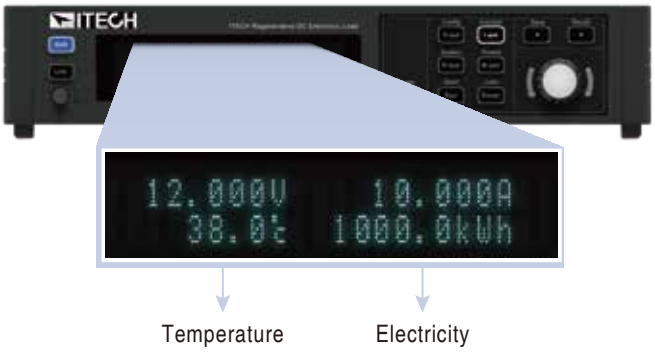
IT-M3300 has energy recovery function, which can feedback power back to local AC grid. The regeneration efficiency can be up to 90%, which greatly reduces the user's electricity cost. It also avoids the using of cooling systems and reduces noise.



Electricity accumulation, high energy saving effect

IT-M3300 uses power electronic conversion technology to recycle the output energy of the power supply under test under the premise of completing the test power experiment. Through the internal high-speed voltage and current sampling, the user can directly view the current total amount of feedback on the instrument panel.

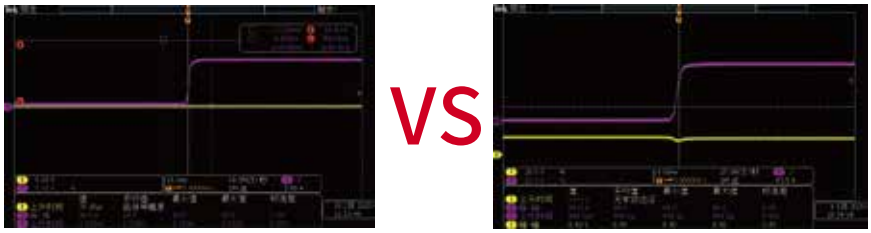
The IT-M3300 is equipped with temperature measurement function as standard. With an optional temperature sensor, you can also directly view the external measurement temperature.



Parallel function

IT-M3300 supports multiple units of same model in parallel to create a system with greater current and power. The user takes the master-slave operation according to the current value of different requirements; maximum up to 16 instruments can be connected in parallel.

The IT-M3300 still have high-speed measurement capability after parallel connection and this speed is almost as same as the single unit.



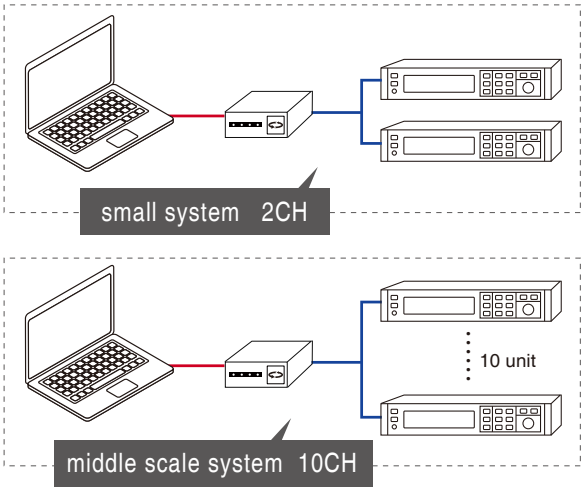
Single unit

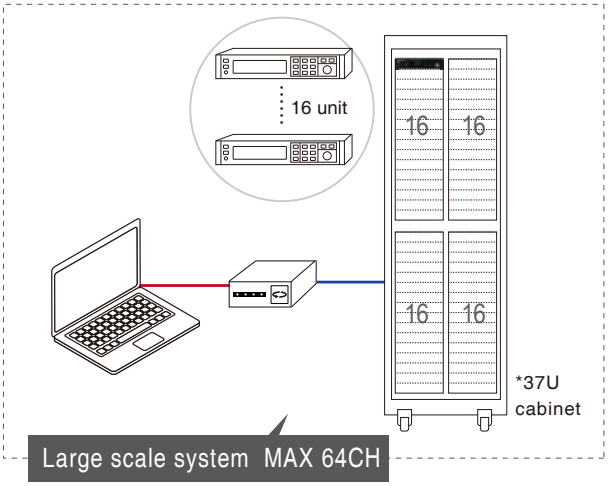
Two units in parallel

Multi-channel independent control, maximum 256 channels

IT-M3300 series is provided with independent multi-channel design.The channel sequence will be displayed when it combines to be a multi-channel electronic load system. The user can control each unit independently by GUI software when connecting the communication interface of one unit with PC. Each channel can be operated separately.

IT-M3300 series supports maximum 16*16 channels. One 37U rack contains 64 channels. The user may test DUT with different power ranges by parallel connection, making tests more flexible and device usage more efficient.





Battery simulation

Battery charger will monitor the voltage of battery after battery charger is connected to battery, If the connection is correctly, the battery charger comes into charge state. In Battery Sim mode, users can set analog voltage of battery, and can output low current, to simulate battery state. It can satify working demand of battery charger, which can be applied to discharging test of battery charger.



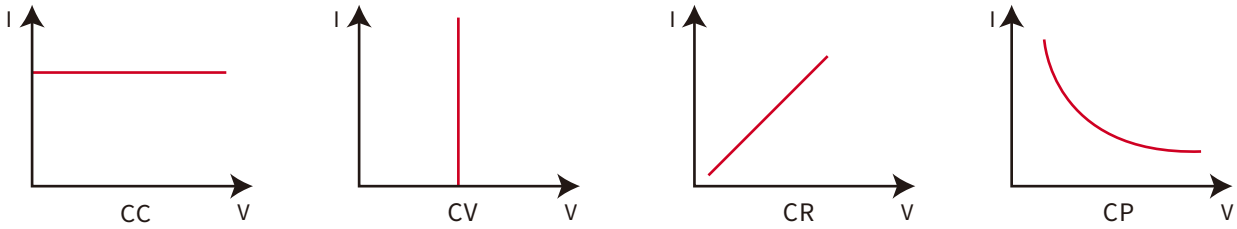


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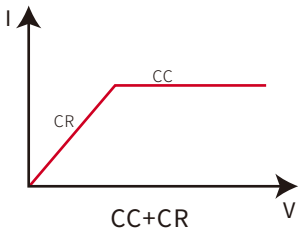
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Multiple operation mode

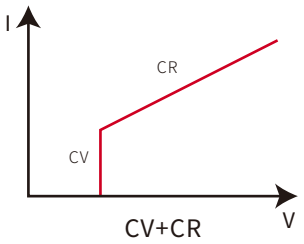
IT-M3300 provides CC/CV/CP/CR four basic operation mode.



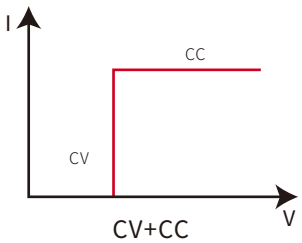
IT-M3300 also provides CC+CR/CV+CR/CV+CC/CC+CV+CP+CR four combined operation mode, which can be applied to the test requirements of various occasions.



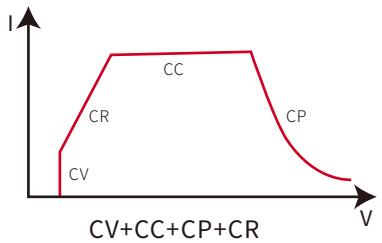
CC+CR mode can be applied to OBC feature test of voltage limit,feature test of current limit,constant voltage accuracy test,constant current accuracy test, to prevent over current protection.



CV+CR mode can be applied to simulate LED light, test LED power, LED current ripple parameters.



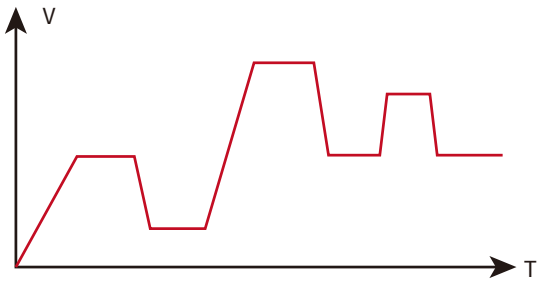
CV+CC mode can be applied to load simulate battery, test charging station or car charger, the maximum loading current is limited,when the CV is working.



CV+CC+CP+CR mode can be applied to test lithium-ion battery charger, to gain complete V-I charging curve.In addition, when protection circuit of DUT is damaged, it can auto switch to aviod damage.

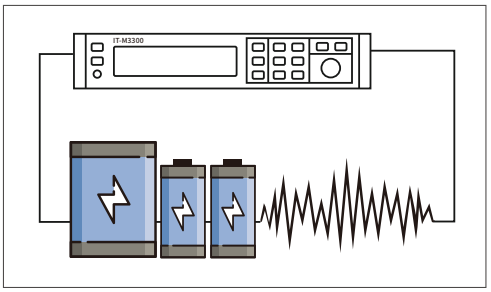
List function

IT-M3300 does not need any software, according to users test demand, it can be edited output waveform generated by voltage and current, and can control voltage rising slope and falling slope.When receiving the triggle signal, it can switch loading waveform automatically.



Battery discharge test

The battery discharge function of IT-M3300 allows you to proceed the discharge test of battery under CC mode.3 cut off conditions can be set, including voltage, capacity and discharge time. When any of the three conditions are met, it will automatically stop the test. The battery voltage, discharge time and discharged capacity can be monitored during the test.

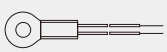


Full protection

IT-M3300 has OCP / UCP / OVP / UVP / OPP / over heat protection, power grid fault protection and fault storage function, power off protection function and Sense function. The power grid state automatic detection function helps to shut down the instrument when the power is suddenly cut off, so as to realize reliable grid connection function and island protection function. The precharge function prevents current overshoot. Equipped with the optional anti-reverse connection module, the anti-reverse connection protection function can be realized to effectively suppress the inrush current.

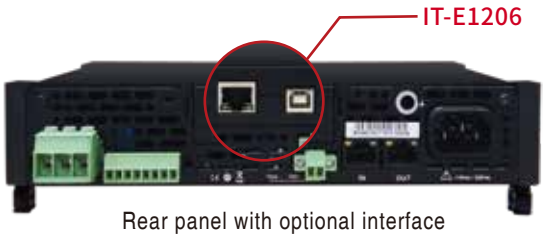
Optional accessories

IT-M3300 series provides below optional multiple interfaces on rear panel to realize different functions, like communication interface, external analog interface.

Pictures	Model	Interface
	IT-E1205	GPIB
	IT-E1206	USB/LAN
	IT-E1207	RS–232/CAN
	IT-E1208	Analog/RS485
	IT-E1209	USB
	IT-E118	Anti-reverse module
	IT-E1203	Temperature Sensor
	IT-E154A/B/C	Rack mount kit



Standard rear panel



Rear panel with optional interface

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IT-M3300 Regenerative DC Electronic Load

Specification

		IT-M3312	IT-M3322	IT-M3332
		Load Parameters		
Rated Input Value (0ºC-40ºC)	Input Voltage	0~60V	0~60V	0~60V
	Input Current	0~30A	0~30A	0~30A
	Input Power	0~200W	0~400W	0~800W
	MOV	1V at 30A	1V at 30A	1V at 30A
CC Mode	Current Range	0~30A	0~30A	0~30A
	Resolution	10mA	10mA	10mA
	Accuracy	<0.1%+0.1% FS	<0.1%+0.1% FS	<0.1%+0.1% FS
CV Mode	Voltage Range	0~60V	0~60V	0~60V
	Resolution	1mV	1mV	1mV
	Accuracy	<0.1% FS	<0.1% FS	<0.1% FS
CR Mode	Resistance Range	0.04~600Ω	0.04~600Ω	0.04~600Ω
	Resolution	min 0.001Ω	min 0.001Ω	min 0.001Ω
	Accuracy	(1/Rmin) *2% : (0.04~60Ω) ; (1/Rmin) *5% : (60~600Ω)	(1/Rmin) *2% : (0.04~60Ω) ; (1/Rmin) *5% : (60~600Ω)	(1/Rmin) *2% : (0.04~60Ω) ; (1/Rmin) *5% : (60~600Ω)
CP Mode	Power Range	0~200W	0~400W	0~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	<1.0% FS	<1.0% FS	<1.0% FS
Dynamic	Rising speed	1ms	1ms	1ms
		Input Value Readback		
Current Readback	Range	0~30A	0~30A	0~30A
	Resolution	1mA	1mA	1mA
	Accuracy	<0.1%+0.1% FS	<0.1%+0.1% FS	<0.1%+0.1% FS
Voltage Readback	Range	0~60V	0~60V	0~60V
	Resolution	1mV	1mV	1mV
	Accuracy	<0.1% FS	<0.1% FS	<0.1% FS
Resistance Readback	Range	0.04~600Ω	0.04~600Ω	0.04~600Ω
	Resolution	min 0.001Ω	min 0.001Ω	min 0.001Ω
	Accuracy	(1/Rmin) *2% : (0.04~60Ω) ; (1/Rmin) *5% : (60~600Ω)	(1/Rmin) *2% : (0.04~60Ω) ; (1/Rmin) *5% : (60~600Ω)	(1/Rmin) *2% : (0.04~60Ω) ; (1/Rmin) *5% : (60~600Ω)
Power Readback	Range	0~200W	0~400W	0~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	<1% FS	<1% FS	<1% FS
		Input protection		
OCP		31A	31A	31A
OVP		61V	61V	61V
OPP		210W	410W	810W
		Short Circuit Test		
Current		33A	33A	33A
		AC parameter		
Voltage range		100VAC~240VAC	100VAC~240VAC	100VAC~240VAC
Frequency range		47Hz~63Hz	47Hz~63Hz	47Hz~63Hz
Max.Current (rms)		1Aac (AC220)	2Aac (AC220)	4Aac (AC220)
		DUT Temperature Measure		
Measure Range		-20----120ºC	-20----120ºC	-20----120ºC
Accuracy		±1ºC	±1ºC	±1ºC
Resolution		0.1ºC	0.1ºC	0.1ºC
		Efficiency		
Max. efficiency (Full Load Power with Max. Input voltage)		86%	86%	86%
		Mechanical Parameters		
Dimension (D*W*H)		450mm*214mm*43.5mm	450mm*214mm*43.5mm	450mm*214mm*43.5mm
Net Weight		5kg	5kg	5kg

*Load mode resistance accuracy range: lower limit 1/(1/R+(1/R)*0.05+0.004); upper limit 1/(1/R-(1/R)*0.05-0.004)

*This information is subject to change without notice

Specification

		IT-M3313	IT-M3323	IT-M3333
		Load Parameters		
Rated Input Value (0ºC-40ºC)	Input Voltage	0~150V	0~150V	0~150V
	Input Current	0~12A	0~12A	0~12A
	Input Power	0~200W	0~400W	0~800W
	MOV	2V at 12A	2V at 12A	2V at 12A
CC Mode	Current Range	0~12A	0~12A	0~12A
	Resolution	1mA	1mA	1mA
	Accuracy	<0.1%+0.1% FS	<0.1%+0.1% FS	<0.1%+0.1% FS
CV Mode	Voltage Range	0~150V	0~150V	0~150V
	Resolution	10mV	10mV	10mV
	Accuracy	<0.1% FS	<0.1% FS	<0.1% FS
CR Mode	Resistance Range	0.25~1500Ω	0.25~1500Ω	0.25~1500Ω
	Resolution	min 0.01Ω	min 0.01Ω	min 0.01Ω
	Accuracy	(1/Rmin) *2% : (0.25~100Ω) ; (1/Rmin) *5% : (100~1500Ω)	(1/Rmin) *2% : (0.25~100Ω) ; (1/Rmin) *5% : (100~1500Ω)	(1/Rmin) *2% : (0.25~100Ω) ; (1/Rmin) *5% : (100~1500Ω)
CP Mode	Power Range	0~200W	0~400W	0~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	<1.0% FS	<1.0% FS	<1.0% FS
Dynamic	Rising speed	1ms	1ms	1ms
		Input Value Readback		
Current Readback	Range	0~12A	0~12A	0~12A
	Resolution	1mA	1mA	1mA
	Accuracy	<0.1%+0.1% FS	<0.1%+0.1% FS	<0.1%+0.1% FS
Voltage Readback	Range	0~150V	0~150V	0~150V
	Resolution	10mV	10mV	10mV
	Accuracy	<0.1% FS	<0.1% FS	<0.1% FS
Resistance Readback	Range	0.25~1500Ω	0.25~1500Ω	0.25~1500Ω
	Resolution	0.01Ω	0.01Ω	0.01Ω
	Accuracy	(1/Rmin) *2% : (0.25~100Ω) ; (1/Rmin) *5% : (100~1500Ω)	(1/Rmin) *2% : (0.25~100Ω) ; (1/Rmin) *5% : (100~1500Ω)	(1/Rmin) *2% : (0.25~100Ω) ; (1/Rmin) *5% : (100~1500Ω)
Power Readback	Range	0~200W	0~400W	0~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	<1% FS	<1% FS	<1% FS
		Input protection		
OCP		12.5A	12.5A	12.5A
OVP		155V	155V	155V
OPP		210W	410W	810W
		Short Circuit Test		
Current		13.2A	13.2A	13.2A
		AC parameter		
Voltage range		100VAC~240VAC	100VAC~240VAC	100VAC~240VAC
Frequency range		47Hz~63Hz	47Hz~63Hz	47Hz~63Hz
Max.Current (rms)		1Aac (AC220)	2Aac (AC220)	4Aac (AC220)
		DUT Temperature Measure		
Measure Range		-20----120ºC	-20----120ºC	-20----120ºC
Accuracy		±1ºC	±1ºC	±1ºC
Resolution		0.1ºC	0.1ºC	0.1ºC
		Efficiency		
Max. efficiency (Full Load Power with Max. Input voltage)		88%	88%	88%
		Mechanical Parameters		
Dimension (D*W*H)		450mm*214mm*43.5mm	450mm*214mm*43.5mm	450mm*214mm*43.5mm
Net Weight		5kg	5kg	5kg

*Load mode resistance accuracy range: lower limit 1/(1/R+(1/R)*0.05+0.004); upper limit 1/(1/R-(1/R)*0.05-0.004)
*This information is subject to change without notice

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IT-M3300 Regenerative DC Electronic Load

Specification

		IT-M3314	IT-M3324	IT-M3334
		Load Parameters		
Rated Input Value (0ºC-40ºC)	Input Voltage	0~300V	0~300V	0~300V
	Input Current	0~6A	0~6A	0~6A
	Input Power	0~200W	0~400W	0~800W
	MOV	5V at 6A	5V at 6A	5V at 6A
CC Mode	Current Range	0~6A	0~6A	0~6A
	Resolution	1mA	1mA	1mA
	Accuracy	<0.1%+0.1% FS	<0.1%+0.1% FS	<0.1%+0.1% FS
CV Mode	Voltage Range	0~300V	0~300V	0~300V
	Resolution	10mV	10mV	10mV
	Accuracy	<0.1% FS	<0.1% FS	<0.1% FS
CR Mode	Resistance Range	1~3000Ω	1~3000Ω	1~3000Ω
	Resolution	min 1Ω	min 1Ω	min 1Ω
	Accuracy	(1/Rmin) *2% : (1~300Ω) ; (1/Rmin) *5% : (300~3000Ω)	(1/Rmin) *2% : (1~300Ω) ; (1/Rmin) *5% : (300~3000Ω)	(1/Rmin) *2% : (1~300Ω) ; (1/Rmin) *5% : (300~3000Ω)
CP Mode	Power Range	0~200W	0~400W	0~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	<1.0% FS	<1.0% FS	<1.0% FS
Dynamic	Rising speed	1ms	1ms	1ms
		Input Value Readback		
Current Readback	Range	0~6A	0~6A	0~6A
	Resolution	0.1mA	0.1mA	0.1mA
	Accuracy	<0.1%+0.1% FS	<0.1%+0.1% FS	<0.1%+0.1% FS
Voltage Readback	Range	0~300V	0~300V	0~300V
	Resolution	10mV	10mV	10mV
	Accuracy	<0.1% FS	<0.1% FS	<0.1% FS
Resistance Readback	Range	1~3000Ω	1~3000Ω	1~3000Ω
	Resolution	1Ω	1Ω	1Ω
	Accuracy	(1/Rmin) *2% : (1~300Ω) ; (1/Rmin) *5% : (300~3000Ω)	(1/Rmin) *2% : (1~300Ω) ; (1/Rmin) *5% : (300~3000Ω)	(1/Rmin) *2% : (1~300Ω) ; (1/Rmin) *5% : (300~3000Ω)
Power Readback	Range	0~200W	0~400W	0~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	<1% FS	<1% FS	<1% FS
		Input protection		
OCP		6.2A	6.2A	6.2A
OVP		310V	310V	310V
OPP		210W	410W	810W
		Short Circuit Test		
Current		6.6A	6.6A	6.6A
		AC parameter		
Voltage range		100VAC~240VAC	100VAC~240VAC	100VAC~240VAC
Frequency range		47Hz~63Hz	47Hz~63Hz	47Hz~63Hz
Max.Current (rms)		1Aac (AC220)	2Aac (AC220)	4Aac (AC220)
		DUT Temperature Measure		
Measure Range		-20----120ºC	-20----120ºC	-20----120ºC
Accuracy		±1ºC	±1ºC	±1ºC
Resolution		0.1ºC	0.1ºC	0.1ºC
		Efficiency		
Max. efficiency (Full Load Power with Max. Input voltage)		88%	88%	88%
		Mechanical Parameters		
Dimension (D*W*H)		450mm*214mm*43.5mm	450mm*214mm*43.5mm	450mm*214mm*43.5mm
Net Weight		5kg	5kg	5kg

*Load mode resistance accuracy range: lower limit 1/(1/R+(1/R)*0.05+0.004); upper limit 1/(1/R-(1/R)*0.05-0.004)

*This information is subject to change without notice

Specification

		IT-M3315	IT-M3325	IT-M3335
		Load Parameters		
Rated Input Value (0ºC-40ºC)	Input Voltage	0~600V	0~600V	0~600V
	Input Current	0~3A	0~3A	0~3A
	Input Power	0~200W	0~400W	0~800W
	MOV	10V at 3A	10V at 3A	10V at 3A
CC Mode	Current Range	0~3A	0~3A	0~3A
	Resolution	1mA	1mA	1mA
	Accuracy	<0.1%+0.1% FS	<0.1%+0.1% FS	<0.1%+0.1% FS
CV Mode	Voltage Range	0~600V	0~600V	0~600V
	Resolution	10mV	10mV	10mV
	Accuracy	<0.1% FS	<0.1% FS	<0.1% FS
CR Mode	Resistance Range	4~6000Ω	4~6000Ω	4~6000Ω
	Resolution	min 1Ω	min 1Ω	min 1Ω
	Accuracy	(1/Rmin) *2% : (4~600Ω) ; (1/Rmin) *5% : (600~6000Ω)	(1/Rmin) *2% : (4~600Ω) ; (1/Rmin) *5% : (600~6000Ω)	(1/Rmin) *2% : (4~600Ω) ; (1/Rmin) *5% : (600~6000Ω)
CP Mode	Power Range	0~200W	0~400W	0~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	<1.0% FS	<1.0% FS	<1.0% FS
Dynamic	Rising speed	1ms	1ms	1ms
		Input Value Readback		
Current Readback	Range	0~3A	0~3A	0~3A
	Resolution	0.1mA	0.1mA	0.1mA
	Accuracy	<0.1%+0.1% FS	<0.1%+0.1% FS	<0.1%+0.1% FS
Voltage Readback	Range	0~600V	0~600V	0~600V
	Resolution	10mV	10mV	10mV
	Accuracy	<0.1% FS	<0.1% FS	<0.1% FS
Resistance Readback	Range	4~6000Ω	4~6000Ω	4~6000Ω
	Resolution	1Ω	1Ω	1Ω
	Accuracy	(1/Rmin) *2% : (4~600Ω) ; (1/Rmin) *5% : (600~6000Ω)	(1/Rmin) *2% : (4~600Ω) ; (1/Rmin) *5% : (600~6000Ω)	(1/Rmin) *2% : (4~600Ω) ; (1/Rmin) *5% : (600~6000Ω)
Power Readback	Range	0~200W	0~400W	0~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	<1% FS	<1% FS	<1% FS
		Input protection		
OCP		3.1A	3.1A	3.1A
OVP		610V	610V	610V
OPP		210W	410W	810W
		Short Circuit Test		
Current		3.3A	3.3A	3.3A
		AC parameter		
Voltage range		100VAC~240VAC	100VAC~240VAC	100VAC~240VAC
Frequency range		47Hz~63Hz	47Hz~63Hz	47Hz~63Hz
Max.Current (rms)		1Aac (AC220)	2Aac (AC220)	4Aac (AC220)
		DUT Temperature Measure		
Measure Range		-20----120ºC	-20----120ºC	-20----120ºC
Accuracy		±1ºC	±1ºC	±1ºC
Resolution		0.1ºC	0.1ºC	0.1ºC
		Efficiency		
Max. efficiency (Full Load Power with Max. Input voltage)		88%	88%	88%
		Mechanical Parameters		
Dimension (D*W*H)		450mm*214mm*43.5mm	450mm*214mm*43.5mm	450mm*214mm*43.5mm
Net Weight		5kg	5kg	5kg

*Load mode resistance accuracy range: lower limit 1/(1/R+(1/R)*0.05+0.004); upper limit 1/(1/R-(1/R)*0.05-0.004)
*This information is subject to change without notice