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TECHNICAL PRODUCT INFORMATION

Test & measurement instruments

- high - quality
- moderate prices
- excellent precision

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Bidirectional

High efficient power regeneration

Battery simulation/charge and discharge test

Independent control of multiple channels



IT-M3400 bidirectional DC power supply integrates the features of a bidirectional power supply and a regenerative load. It keeps the advantages of high power density and modular architecture design of M series.

It can meet the customer's test requirement of different current and power level. Enables synchronous control and independent setup of up to 256 channels, empowering efficient and scalable production line testing. At the same time, it has high-precision output and measurement, and has made a number of safety designs for testing, suitable for multiple test fields, such as power modules, intelligent industrial equipment, automotive electronics, charging and discharging tests of various small-capacity batteries.

FEATURE

- 1U Half-rack, high power density
- Bidirectional energy flow
- Utilizes third-generation SiC power devices for efficient energy recovery.
- Battery test
- Battery simulation
- Supports synchronous control of up to 256 channels with proportional tracking function
- High speed measurement, 10 times/s updating rate
- CC/CV priority
- Adjustable output impedance
- Programmable voltage and current rise and fall time
- Temperature measurement function, over temperature protection
- List
- Various protection such as OCP / UCP / OVP / OTP / OPP / UVP over heat protection, grid fault protection and fault storage, foldback, Power-off protection, sense abnormal protection
- Automatic detection of power grid state to realize reliable grid connection
- Pre charge function to prevent overshoot of DC loading current
- Anti-reverse protection function through optional accessories
- Five optional cards, supporting RS232,CAN,LAN,GPIB, USB_TMC,USB_VCP, RS485, analog and IO

Model	Voltage	Current	Power	Model	Voltage	Current	Power
IT-M3412	60V	30A	200W	IT-M3414	300V	6A	200W
IT-M3422	60V	30A	400W	IT-M3424	300V	6A	400W
IT-M3432	60V	30A	800W	IT-M3434	300V	6A	800W
IT-M3413	150V	12A	200W	IT-M3415	600V	3A	200W
IT-M3423	150V	12A	400W	IT-M3425	600V	3A	400W
IT-M3433	150V	12A	800W	IT-M3435	600V	3A	800W

Your Power Testing Solution

IT-M3400 bidirectional DC power supply

Specification

		IT-M3412	IT-M3413	IT-M3414
Rated Output Value (0 °C~40 °C)	Output Voltage	0~60V	0~150V	0~300V
	Output Current	-30A~30A	-12A~12A	-6A~6A
	Output Power	-200W~200W	-200W~200W	-200W~200W
CC Mode	Current Range	-30A~30A	-12A~12A	-6A~6A
	Resolution	10mA	1mA	1mA
	Accuracy	<0.1% +0.1% FS	<0.1% +0.1% FS	<0.1% +0.1% FS
CV Mode	Voltage Range	0~60V	0~150V	0~300V
	Resolution	1mV	10mV	10mV
	Accuracy	0.02% +0.02% FS	0.02% +0.02% FS	0.02% +0.02% FS
Resistance Programming (Sourcing)	Resistance Range	0~1000mΩ	0~1000mΩ	0~1000mΩ
	Resolution	0.1mΩ	0.1mΩ	0.1mΩ
	Accuracy	2% FS	2% FS	2% FS
CP Mode	Power Range	-200W~200W	-200W~200W	-200W~200W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	1% + 1%FS	1% + 1%FS	1% + 1%FS
Output Current Readback	Range	-30A~30A	-12A~12A	-6A~6A
	Resolution	1mA	1mA	1mA
	Accuracy	<0.1% +0.1% FS	<0.1% +0.1% FS	<0.1% +0.1% FS
Output Voltage Readback	Range	0~60V	0~150V	0~300V
	Resolution	1mV	10mV	10mV
	Accuracy	0.02% +0.02% FS	0.02% +0.02% FS	0.02% +0.02% FS
Output Power Readback	Range	-200W~200W	-200W~200W	-200W~200W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	1% + 1%FS	1% + 1%FS	1% + 1%FS
Load Regulation	Voltage	≤0.02% +0.02% FS	≤0.02% +0.02% FS	≤0.01% +0.01% FS
	Current	≤0.03% +0.03% FS	≤0.03% +0.03% FS	≤0.03% +0.03% FS
Line Regulation	Voltage	≤0.01% +0.01% FS	≤0.01% +0.01% FS	≤0.01% +0.01% FS
	Current	≤0.02% +0.02% FS	≤0.02% +0.02% FS	≤0.02% +0.02% FS
Ripple	Voltage	≤100mVp-p	≤300mVp-p	≤600mVp-p
	Current	≤30mArms	≤30mArms	≤30mArms
Rise Time	Voltage (No Load)	5ms	20ms	20ms
Rise Time	Voltage (Full Load)	10ms	50ms	50ms
Fall Time	Voltage (No Load)	5ms	20ms	20ms
Fall Time	Voltage (Full Load)	5ms	20ms	20ms
DUT temperature measure	Range	-20 °C~120 °C	-20 °C~120 °C	-20 °C~120 °C
	Accuracy	±1 °C	±1 °C	±1 °C
	Resolution	0.1 °C	0.1 °C	0.1 °C
Power Rating	Voltage Range	100VAC~240VAC (±10%)	100VAC~240VAC (±10%)	100VAC~240VAC (±10%)
	Ovp	264VAC	264VAC	264VAC
	Uvp	90VAC	90VAC	90VAC
	Frequency	47Hz~63Hz	47Hz~63Hz	47Hz~63Hz
	Max.input Current	1Aac (AC220V)	1Aac (AC220V)	1Aac(AC220V)
	Dc Component	-0.1A~+0.1A	-0.1A~+0.1A	-0.1A~+0.1A
Efficiency (Max.)		86%	88%	88%
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 $1/(1/R-(1/R)*0.05-0.004)$

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Your Power Testing Solution

IT-M3400 bidirectional DC power supply

Specification

		IT-M3415	IT- M3422	IT-M3423
Rated Output Value (0 °C~40 °C)	Output Voltage	0~600V	0~60V	0~150V
	Output Current	-3A~3A	-30A~30A	-12A~12A
	Output Power	-200W~200W	-400W~400W	-400W~400W
CC Mode	Current Range	-3A~3A	-30A~30A	-12A~12A
	Resolution	1mA	10mA	1mA
	Accuracy	<0.1% +0.1% FS	<0.1% +0.1% FS	<0.1% +0.1% FS
CV Mode	Voltage Range	0~600V	0~60V	0~150V
	Resolution	10mV	1mV	10mV
	Accuracy	0.02% +0.02% FS	0.02% +0.02% FS	0.02% +0.02% FS
Resistance Programming (Sourcing)	Resistance Range	0~1000mΩ	0~1000mΩ	0~1000mΩ
	Resolution	0.1mΩ	0.1mΩ	0.1mΩ
	Accuracy	2% FS	2% FS	2% FS
CP Mode	Power Range	-200W~200W	-400W~400W	-400W~400W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	1% + 1%FS	0.5% + 0.5%FS	0.5% + 0.5%FS
Output Current Readback	Range	-3A~3A	-30A~30A	-12A~12A
	Resolution	1mA	1mA	1mA
	Accuracy	<0.1% +0.1% FS	<0.1% +0.1% FS	<0.1% +0.1% FS
Output Voltage Readback	Range	0~600V	0~60V	0~150V
	Resolution	10mV	1mV	10mV
	Accuracy	0.02% +0.02% FS	0.02% +0.02% FS	0.02% +0.02% FS
Output Power Readback	Range	-200W~200W	-400W~400W	-400W~400W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	1% + 1%FS	0.5% + 0.5%FS	0.5% + 0.5%FS
Load Regulation	Voltage	≤0.01% +0.01% FS	≤0.02% +0.02% FS	≤0.02% +0.02% FS
	Current	≤0.03% +0.03% FS	≤0.03% +0.03% FS	≤0.03% +0.03% FS
Line Regulation	Voltage	≤0.01% +0.01% FS	≤0.01% +0.01% FS	≤0.01% +0.01% FS
	Current	≤0.02% +0.02% FS	≤0.02% +0.02% FS	≤0.02% +0.02% FS
Ripple	Voltage	≤1200mVp-p	≤100mVp-p	≤300mVp-p
	Current	≤30mArms	≤30mArms	≤30mArms
Rise Time	Voltage (No Load)	30ms	5ms	20ms
Rise Time	Voltage (Full Load)	60ms	10ms	50ms
Fall Time	Voltage (No Load)	30ms	5ms	20ms
Fall Time	Voltage (Full Load)	30ms	5ms	20ms
DUT temperature measure	Range	-20 °C ~120 °C	-20 °C ~120 °C	-20 °C ~120 °C
	Accuracy	±1 °C	±1 °C	±1 °C
	Resolution	0.1 °C	0.1 °C	0.1 °C
Power Rating	Voltage Range	100VAC~240VAC (±10%)	100VAC~240VAC (±10%)	100VAC~240VAC (±10%)
	Ovp	264VAC	264VAC	264VAC
	Uvp	90VAC	90VAC	90VAC
	Frequency	47Hz~63Hz	47Hz~63Hz	47Hz~63Hz
	Max.input Current	1Aac(AC220V)	2Aac (AC220V)	2Aac (AC220V)
	Dc Component	-0.1A~+0.1A	-0.1A~+0.1A	-0.1A~+0.1A
Efficiency (Max.)		88%	86%	88%
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 $1/(1/R-(1/R)*0.05-0.004)$

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Your Power Testing Solution

IT-M3400 bidirectional DC power supply

Specification

		IT-M3424	IT-M3425	IT-M3432
Rated Output Value (0°C~40°C)	Output Voltage	0~300V	0~600V	0~60V
	Output Current	-6A~6A	-3A~3A	-30A~30A
	Output Power	-400W~400W	-400W~400W	-800W~800W
CC Mode	Current Range	-6A~6A	-3A~3A	-30A~30A
	Resolution	1mA	1mA	10mA
	Accuracy	<0.1% +0.1% FS	<0.1% +0.1% FS	<0.1% +0.1% FS
CV Mode	Voltage Range	0~300V	0~600V	0~60V
	Resolution	10mV	10mV	1mV
	Accuracy	0.02% +0.02% FS	0.02% +0.02% FS	0.02% +0.02% FS
Resistance Programming (Sourcing)	Resistance Range	0~1000mΩ	0~1000mΩ	0~1000mΩ
	Resolution	0.1mΩ	0.1mΩ	0.1mΩ
	Accuracy	2% FS	2% FS	2% FS
CP Mode	Power Range	-400W~400W	-400W~400W	-800W~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	0.5% + 0.5%FS	0.5% + 0.5%FS	0.3% + 0.3%FS
Output Current Readback	Range	-6A~6A	-3A~3A	-30A~30A
	Resolution	1mA	1mA	1mA
	Accuracy	<0.1% +0.1% FS	<0.1% +0.1% FS	<0.1% +0.1% FS
Output Voltage Readback	Range	0~300V	0~600V	0~60V
	Resolution	10mV	10mV	1mV
	Accuracy	0.02% +0.02% FS	0.02% +0.02% FS	0.02% +0.02% FS
Output Power Readback	Range	-400W~400W	-400W~400W	-800W~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	0.5% + 0.5%FS	0.5% + 0.5%FS	0.3% + 0.3%FS
Load Regulation	Voltage	≤0.01% +0.01% FS	≤0.01% +0.01% FS	≤0.02% +0.02% FS
	Current	≤0.03% +0.03% FS	≤0.03% +0.03% FS	≤0.03% +0.03% FS
Line Regulation	Voltage	≤0.01% +0.01% FS	≤0.01% +0.01% FS	≤0.01% +0.01% FS
	Current	≤0.02% +0.02% FS	≤0.02% +0.02% FS	≤0.02% +0.02% FS
Ripple	Voltage	≤600mVp-p	≤1200mVp-p	≤100mVp-p
	Current	≤30mA _{rms}	≤30mA _{rms}	≤30mA _{rms}
Rise Time	Voltage (No Load)	20ms	30ms	5ms
Rise Time	Voltage (Full Load)	50ms	60ms	10ms
Fall Time	Voltage (No Load)	20ms	30ms	5ms
Fall Time	Voltage (Full Load)	20ms	30ms	5ms
DUT temperature measure	Range	-20°C ~120°C	-20°C ~120°C	-20°C ~120°C
	Accuracy	±1°C	±1°C	±1°C
	Resolution	0.1°C	0.1°C	0.1°C
Power Rating	Voltage Range	100VAC~240VAC (±10%)	100VAC~240VAC (±10%)	100VAC~240VAC (±10%)
	Ovp	264VAC	264VAC	264VAC
	Uvp	90VAC	90VAC	90VAC
	Frequency	47Hz~63Hz	47Hz~63Hz	47Hz~63Hz
	Max.input Current	2A _{ac} (AC220V)	2A _{ac} (AC220V)	4A _{ac} (AC220V)
	Dc Component	-0.1A~+0.1A	-0.1A~+0.1A	-0.1A~+0.1A
Efficiency (Max.)		88%	88%	86%
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 $1/(1/R-(1/R)*0.05-0.004)$

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Your Power Testing Solution

IT-M3400 bidirectional DC power supply

Specification

		IT-M3433	IT- M3434	IT-M3435
Rated Output Value (0°C~40°C)	Output Voltage	0~150V	0~300V	0~600V
	Output Current	-12A~12A	-6A~6A	-3A~3A
	Output Power	-800W~800W	-800W~800W	-800W~800W
CC Mode	Current Range	-12A~12A	-6A~6A	-3A~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	0~150V	0~300V	0~600V
	Resolution	10mV	10mV	10mV
	Accuracy	0.02% +0.02% FS	0.02% +0.02% FS	0.02% +0.02% FS
Resistance Programming (Sourcing)	Resistance Range	0~1000mΩ	0~1000mΩ	0~1000mΩ
	Resolution	0.1mΩ	0.1mΩ	0.1mΩ
	Accuracy	2% FS	2% FS	2% FS
CP Mode	Power Range	-800W~800W	-800W~800W	-800W~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	0.3% + 0.3%FS	0.3% + 0.3%FS	0.3% + 0.3%FS
Output Current Readback	Range	-12A~12A	-6A~6A	-3A~3A
	Resolution	1mA	0.1mA	0.1mA
	Accuracy	<0.1% +0.1% FS	<0.1% +0.1% FS	<0.1% +0.1% FS
Output Voltage Readback	Range	0~150V	0~300V	0~600V
	Resolution	10mV	10mV	10mV
	Accuracy	0.02% +0.02% FS	0.02% +0.02% FS	0.02% +0.02% FS
Output Power Readback	Range	-800W~800W	-800W~800W	-800W~800W
	Resolution	0.1W	0.1W	0.1W
	Accuracy	0.3% + 0.3%FS	0.3% + 0.3%FS	0.3% + 0.3%FS
Load Regulation	Voltage	≤0.02% +0.02% FS	≤0.01% +0.01% FS	≤0.01% +0.01% FS
	Current	≤0.03% +0.03% FS	≤0.03% +0.03% FS	≤0.03% +0.03% FS
Line Regulation	Voltage	≤0.01% +0.01% FS	≤0.01% +0.01% FS	≤0.01% +0.01% FS
	Current	≤0.02% +0.02% FS	≤0.02% +0.02% FS	≤0.02% +0.02% FS
Ripple	Voltage	≤300mVp-p	≤600mVp-p	≤1200mVp-p
	Current	≤30mA _{rms}	≤30mA _{rms}	≤30mA _{rms}
Rise Time	Voltage (No Load)	20ms	20ms	30ms
Rise Time	Voltage (Full Load)	50ms	50ms	60ms
Fall Time	Voltage (No Load)	20ms	20ms	30ms
Fall Time	Voltage (Full Load)	20ms	20ms	30ms
DUT temperature measure	Range	-20°C ~120°C	-20°C ~120°C	-20°C ~120°C
	Accuracy	±1°C	±1°C	±1°C
	Resolution	0.1°C	0.1°C	0.1°C
Power Rating	Voltage Range	100VAC~240VAC (±10%)	100VAC~240VAC (±10%)	100VAC~240VAC (±10%)
	Ovp	264VAC	264VAC	264VAC
	Uvp	90VAC	90VAC	90VAC
	Frequency	47Hz~63Hz	47Hz~63Hz	47Hz~63Hz
	Max.input Current	4Aac (AC220V)	4Aac(AC220V)	4Aac(AC220V)
	Dc Component	-0.1A~+0.1A	-0.1A~+0.1A	-0.1A~+0.1A
Efficiency (Max.)		88%	88%	88%
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 $1/(1/R-(1/R)*0.05-0.004)$

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