产品介绍—01
PRODUCT INTRODUCTION

高级微网控制器
Advanced Micro-grid Controller

IMGC-A01

IMGC-A02

IMGC-A03

产品简介
BRIEF INTRODUCTION

高级微网控制器是集微网控制、保护、在线安全分析、小微传感器接入、顺序控制、云端互动于一体的微网核心二次设备。

可适用于分布式电源、交直流负荷、固定储能和电动汽车充放电设施，以交流、直流或交直流混合的方式灵活组网及并离网运行等多种应用场景。

Advanced Micro-grid Controller is a micro-grid core secondary device integrated with micro-grid control, protection, online security analysis, access to small and micro sensors, sequence control and device-cloud interaction.

It can be applied to distributed power supply, AC and DC load, fixed energy storage and charging and discharging facilities of electric vehicles. It can flexibly fit with scenes like AC bus, DC bus, AC and DC hybrid system and on/off grid operation.

高度集成，为新能源微网提供控制、保护、数据采集和通信、能量管理一体化解决方案

集控制、保护、通信、能量管理于一身，大幅度简化用户运维工作，减少运维成本。

With high integration, MGC provides integrated solutions for control, protection, data acquisition and communication and energy management for new energy micro-grid.
It integrates control, protection, communication and energy management, greatly simplifies user's work in operation and maintenance and reduces the costs.

平台化、插件化设计，可灵活适应不同类型微网应用场景

采用平台化、插件化设计，可以通过配置方便地应用于光储充微网、海岛独立运行微网、用户侧储能等多种应用场景，有着极其灵活的适应性。

With platform design and plug-in design MGC can flexibly adapt to different types of micro-grid application scenarios.
With platform design and plug-in design, it can be conveniently configured to be applied in various application scenarios such as PV-ESS-charging micro-grid, isolated island micro-grid and user-side energy storage, etc. showing extremely flexible adaptability.

快速精准的控制策略实现电力电子设备和电力系统的无缝衔接

利用电力系统一次调频和有差调节等多种成熟控制策略，在充分发挥电力电子设备快速调节性能的同时增加微电网系统惯性，实现电力电子设备和电力系统的无缝衔接。

Fast and accurate control strategy realizes seamless connection between power electronic equipment and power system.
Through the application of a variety of mature control strategies such as power system primary frequency modulation and differential regulation, etc., making full use of the fast regulation performance of power electronics, and increasing micro-grid system inertia can realize the seamless connection between power electronics and power system.

为微网系统提供简单智能的人机交互界面

可通过内置 WEB 服务或者微网能量云的 SaaS 化服务给用户提供简单智能的人机操作界面，简化微电网操作，提升用户使用感受。

MGC provides simple and intelligent UI for micro-grid system.
Providing users with simple and intelligent UI through built-in WEB service or SaaS service of Micro-grid Energy Cloud, it simplifies micro-grid operation and improves user experience.

结合云端优化调度，提升微网系统运行的经济性

结合微网能量云的优化调度功能，通过削峰填谷、参与需求侧响应、调峰调频等多种手段提升微网系统运行的经济性，最大化用户收益。

Combined with optimization scheduling on cloud, MGC improves the economy of micro-grid system operation.
Combined with the optimization scheduling function of Micro-Grid Energy Cloud, the economy of micro-grid system operation can be improved by means, meanwhile user benefits can be maximized through many ways of peak load shifting, demand side response, peak shaving and frequency modulation .

产品参数
PRODUCT PARAMETERS

型号		IMGC-A01	IMGC-A02	IMGC-A03
机械结构	机械尺寸(W*H*D)	484×175×280/mm	300.40×175×282.60/mm	209.85×173.45×271.48/mm
	装置重量	约10kg	约5kg	约5kg
通信端口	以太网接口	3个	3个	3个
	串口	3路（可扩展）	3路（可扩展）	3路（可扩展）
	CAN口	4路（可扩展）	4路（可扩展）	4路（可扩展）
模拟量采集	交流量采集	36路	15路	6路
	直流量采集	26路	16路	10路
开入开出	开入	84路	42路	14路
	开出	36路	18路	6路
关键功能				
控制	交直流母线电压控制、并离网切换、经济运行、黑启动、电动汽车充放电			
在线安全分析	功率备用分析、能量备用分析、N-1分析			
保护	带方向闭锁的过流保护、直流保护、纵联保护、低压保护、频率保护			
通信规约	IEC60870-5系列、MQTT、Modbus、CAN			
就地EMS	微网运行状态监测、定制参数查询和修改、遥控操作、历史信息查询、录波数据查看			
模拟量参数				
交流电压性能	额定频率	50Hz		
	额定电压	380VAC		
	谐波计算	15次		
	连续过载能力	440VAC		
	单相功耗	0.5VA		
交流电流性能	额定电流	1A/5A自适应		
	连续过载能力	10 I_n		
	单相功耗	1VA		
直流电流性能	额定电流	±250mA		
	连续过载能力	20 I_n		
遥测计量等级	电流、电压	0.5级		
	有功、无功	0.5级		
	频率	±0.005Hz		
开关量参数				
开关量输入性能	额定电压	24/48VDC		
	启动电压	70%		
	额定电流（典型值）	1.1mA		
	最大允许电压	70VAC		
	耐压水平	2000VAC，2800VDC		
	输出接点分类	跳闸、信号		
开关量输出性能	输出形式	无源节点		
	触点耐压	1000V RMS，1 分钟		
	接通电流	5A~10A		
	冲击过流能力	8A,3s 12A,1s 16A,0.5s 30A,0.2s		
	动作时间	<8ms		
	机械寿命	带载10 万次，空载1 千万次		

Model		IMGC-A01	IMGC-A02	IMGC-A03
Mechanical structure	Size(W*H*D)	484×175×280/mm	300.40×175×282.60/mm	209.85×173.45×271.48/mm
	Weight	About 10kg	About 5kg	About 5kg
Communication port (typical)	RJ-45 interface	3	3	3
	Serial port	3(expandable)	3(expandable)	3(expandable)
	CAN bus interface	4(expandable)	4(expandable)	4(expandable)
Analog signal acquisition (typical)	AC analog signal acquisition	36 channels	15 channels	6 channels
	DC analog signal acquisition	26 channels	16 channels	10 channels
DI&DO (typical)	DI	84 channels	42 channels	14 channels
	DO	36 channels	18 channels	6 channels
Key functions				
Control	AC&DC bus voltage control,On/off switch,Economical operation,Black start,EV charging&discharging			
Online security analysis	Power reserve analysis,Energy reserve analysis,N-1 analysis			
Protection	Voltage direction overcurrent protection,DC protection,Pilot protection,Low voltage protection,Frequency protection			
Local EMS	Micro-grid operation status monitoring.Customization of parameter query and modification .Remote control.Historical information query,View of recorded data			
Communication protocol	IEC60870-5 series,MQTT,Modbus,CAN			
Analog signal parameters				
AC voltage performancet	Rated frequency	50Hz		
	Rated voltage	380VAC		
	Harmonic calculation	15 times		
	Continuous overload capacity	440VAC		
	Single phase power consumption	0.5VA		
AC current performance	Rated current	1A/5A self-adapting		
	Continuous overload capacity	10 I_n		
	Single phase power consumption	1VA		
DC current performance	Rated current	±250mA		
	Continuous overload capacity	20 I_n		
Telemetry measurement grade	Current&voltage	Grade 0.5		
	Active power&reactive power	Grade 0.5		
	Frequency	±0.005Hz		
Switch signal parameter				
Switch signal input performance	Rated voltage	24/48VDC		
	Start voltage	70%		
	Rated current(typical)	1.1mA		
	Max voltage allowed	70VAC		
	Withstand voltage level	2000VAC,2800VDC		
	Sort of output node	Trip or Signal		
Switch signal output performance	Output form	Passive node		
	Contacts withstand voltage	1000V RMS,1 min		
	Switch-on current	5A~10A		
	Impulse overcurrent capacity	8A,3s 12A,1s 16A,0.5s 30A,0.2s		
	Motion time	<8ms		
	Mechanical life	100,000 times when loaded,10,000,000 times when no load		