SLx SERIES
程控直流电源

型号
171

配置
26,500+

功率等级
1.5 kW, 2.6 kW, 4 kW, 6 kW, 8 kW, and 10 kW in 1U

具有单相UI2供电方式的2.6kW SL系列电源产品，移除了输出输出保护罩

SLx系列产品介绍

基于40多年的电源创新和超过26500种不同的型号配置的SLx系列是Magna-Power产品中最稳定的可编程直流电源系列。SLx系列提供6种不同功率级别的，细分电压和电流的产品规格。具有业界领先的功率密度，坚固耐用的电流回馈功率控制和最先进的MagnaLINK™分布式DSP数字控制架构。SLx系列满足各种研究开发和工业自动化过程控制对直流电源的测试需求。

特性

- 电压，电流和功率控制
- 坚固耐用的电流回馈功率控制
- 16比特高分辨率和每位独立控制
- 支持SCPI和Modbus指令集
- 可程控保护特性
- 互锁功能和硬件应急停止
- 上升下降速度控制
- 高达50°C的连续满功率输出能力
- 可配置的26-pin模数控制接口
- 数字化混合的主从控制MagnaLINK
- 本地，远程和无线的感应功能
- USB(前后面板)和RS485接口
- CAN, EtherCAT, EtherNet/IP, LXI TCP/IP Ethernet, ModbusTCP, 和PROFINET可选通信接口
- MagnaCTRL软件控制平台
- 美国制造

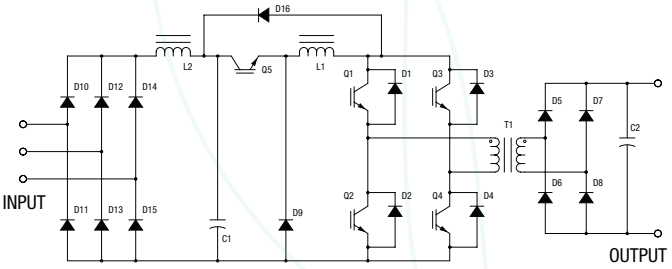
40年持续致力于电源产品创新

MagnaLINK™ 分布式数字化控制

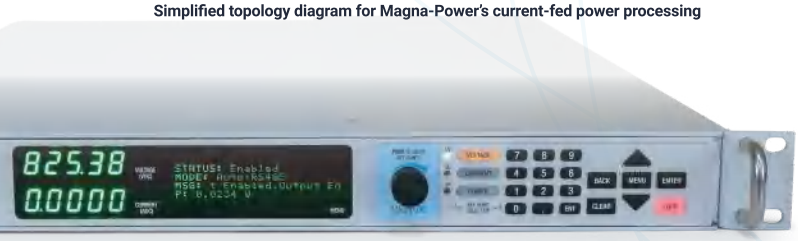
Magna-Power公司开发了MagnaLINK™ 数字控制平台,通过优化四个分布在内部不同部件的TI公司的DSP芯片实现控制。通过优化DSP内部的底层通信协议实现了高速板对板通信控制。自定义加载程序可长期支持不同功能的固件更新和同步。新功能通过使用MagnaLINK数字架构实现,包括:上升下降速率控制,增益修改,16位分辨率,100ppm稳定性,用户自定义序列输出和函数生成以及数字混合主从控制。

高可靠性的电流回馈功率控制技术

所有MagnaDC可编程直流电源均采用高频基于IGBT和MOSFET的电流回馈拓扑功率处理。这样的拓扑结构比较传统电压回馈拓扑结构,增加了一个额外的用于增强控制和系统保护的结构,确保在发生故障的情况下,电源可以增强自我保护。正是由于这种拓扑结构的特点,系统可以消除快速上升时产生的电流尖峰和的磁芯饱和。此拓扑接口与先进的碳化硅(SiC)功率半导体技术使SLx系列产品可以提供在环境温度高达50°C的的情况下,连续满功率运行的超高功率密度、可靠性和效率。



Simplified topology diagram for Magna-Power's current-fed power processing



直观、明亮、耐用的前面板界面

SLx系列采用复合方式显示,优化并同时兼顾了显示亮度和可靠性,亮绿色显示电压和电流输出,多行段显示功率测量、设置配置和状态。黑色阳极氧化加工铝制旋钮可实现精确调谐,设置相应参数;而10位数字按键和箭头按钮提供可以为设备精密的16比特分辨率提供直接数字设定的功能。此外,专用的一键锁定按钮功能可以锁定前面板,防止意外触碰面板导致不必要的设定更改。前面板的USB接口可以帮助用户轻松地将SLx与计算机连接;后面板的USB接口和其他程控接口可以方便用户集成测试系统。

即插即用主从控制方式

SLx系列产品使用了Magna-Power下一代数字混合主从控制技术,可以通过双数字MagnaLINK通信端口实现灵活的连接方式。主从模式最多支持12台设备连接,用户可以轻松并联更多的设备来扩展电流能力。从机可以为主机提供实时的模拟量电流大小,从而确保了整个系统的高精度和可靠的电流输出和测量能力。

标准安全特性与应急停止

SLx系列可编程直流电源具有全面的安全和诊断功能,包括:

- 交流输入电缺相相位损耗
- 过电压跳闸(可编程)
- 过电流跳闸(可编程)
- 过功率跳闸(可编程)
- 保险丝熔断
- 程控输入电压过高
- 内部散热器温度过高
- 输出电容温度过高
- 联锁故障

在待机状态或者诊断故障发生,通过硬件的交流接触器将交流输入电路与电源功率控制处理电路从物理连接断开,保证了安全性,同时只启用电源控制回路,从而确保了电源在故障清楚后才再次启动正常的功率输出能力。用户可以通过前面板的故障状态信息或SCPI/Modbus程控指令轻松读取故障信息。联锁和紧急停止功能都是标准配置,互锁功能提供5V互锁输入,当与提供的5V参考信号耦合时,允许干触点轻松触发闭锁互锁故障,同时保持控制功率处理部分。单独的紧急情况停止功能绕过所有逻辑和处理器,提供一条仅限硬件的路径,通过24V信号轻松中断SLx系列电源的交流电源,从而实现硬件完全关闭。

便于维修维护的自我故障检测能力

SLx系列使用了Magna-Power设计的自我诊断功能,将产品中每个主要组件的状态LED连接到产品显示面板安装的LED矩阵,可以提供每个内部组件的状态显示,方便用户或售后人员在无需拆卸外壳的情况下轻松了解故障或组件的状态或问题。诊断功能与MagnaCTRL的EPROM编辑器相结合,提供了强大的远程支持工具,有效减少停机时间。

美国制造,全球有效

Magna-Power可编程直流电源的设计和生产制造在位于美国新泽西州弗莱明顿,拥有73500平方英尺的垂直一体化现代化自动化的生产工厂。从原料到成品,Magna-Power公司几乎全部生产制程由自己独立完成,以完全控制质量、成本和生产周期时间。散热器和各种金属组件通过自动CNC和EDM进行加工,金属机框由工厂自己进行切割、冲孔、打磨、弯曲和粉末涂层。磁学器件根据模型的电压从经过验证的设计中按顺序缠绕现在的具有多个3D阶段的全表面安装技术(SMT)自动化光学检测确保高质量印刷电路板组件。在精密组装后产品会做全面测试校准,老化测试等等,这些过程都在工厂内部完成,然后通过销售网络销往全球,并服务全球的用户。

灵活的程控功能

多种工业控制的通信接口

SLx系列电源标配双USB（正面和背面）和RS485程控接口。并且提供了用于传统TCP/IP网络控制（SCPI或Modbus）或通过对工业通信接口的无缝完全的集成选项。Magna-Power公司可以提供以下可选工业控制接口：

- CANopen (+CAN)
- EtherCAT (+ECAT)
- EtherNet/IP (+EIP)
- LXI TCP/IP Ethernet (+LXI)
- Modbus-TCP (+MTCP)
- PROFINET (+PROF)

可配置的模拟量和数字用户控制接口

所有SLx系列电源标配26针D-Sub模拟量I/O用户控制接口。此连接器提供：

- 8个数字输出（5V逻辑信号）
- 4个数字输入（5V逻辑信号）
- 4个模拟输出（0-10V逻辑信号）
- 4个模拟输入（0-10V逻辑信号）

外部用户I/O接口与电源输出端子完全隔离并参考接地。连接器的引脚可由用户自定义，允许用户根据应用选择所需的功能，并为用户未来新的应用需求预留拓展功能。通过数字量接口可以使电源实现多种集成能力，比如可以提供外部启用信号或数字故障监测逻辑信号，或者通过模拟0-10V输出监测回路的电压电流。高速模拟量接口可以提供采样频率为2kHz的输入信号，几乎是实时控制。

便于软件集成互连

通过标准编程命令（SCPI）和Modbus、SLx系列电源提供易于使用的API，并提供详尽的指令文档。用户可以通过程控指令访问寄存器，启动和停止产品，控制电压、电流和功率，控制爬升速率，读取高精度测量值，并可以对产品做不同设置。Magna-Power公司提供丰富的文档和编程实例帮助用户轻松实现程序控制脚本编写和复杂的软件控制。

```
import serial
magnaPower = serial.Serial(port='COM4', baudrate=115200)
magnaPower.write('*IDN?\n'.encode())
print magna_power.readline()
magnaPower.write('VOLT 0\n'.encode())
magnaPower.write('CURR 0\n'.encode())
magnaPower.write('OUTP:START\n'.encode())
magnaPower.write('VOLT 270\n'.encode())
currSetPoints = [50, 100, 150, 250]
for currSetPoint in currSetPoints:
    print 'Setting Current to %s A' % currSetPoint
    magnaPower.write('CURR {0}\n'.format(currSetPoint).encode())
    magnaPower.write('MEAS:VOLT?\n'.encode())
    print magnaPower.readline()
    time.sleep(20)
magnaPower.write('OUTP:STOP\n'.encode())
magnaPower.close()
```

使用SCPI命令通过RS485进行排序的基本Python编程示例通过电流设置点的阵列。

SLx系列订购指南

SLx系列产品有超过26500种不同的配置信号，根据不同的输入电压、直流输出大小和不同集成选项需求来确定。以下为型号配置订购指南。

SLx10-800-12.5/480+ECAT

- SLx10 — 产品系列
- 800 — 输出功率
- 12.5 — 输出最大电压
- 480 — 输出最大电流
- ECAT — 交流输入电压
- 集成选件

	1.5 kW	2.6 kW	4 kW	6 kW	8 kW	10 kW		
Max Voltage (Vdc)	Max Current (Adc)						Ripple (mVrms)	Efficiency
5	250	500	600	N/A	N/A	N/A	30	84%
10	150	250	400	600	N/A	N/A	30	89%
16	93	162	250	375	500	600	40	89%
20	75	130	200	250	400	500	45	90%
25	60	104	160	240	320	400	50	91%
32	46	81	125	186	250	310	60	91%
40	37	65	100	150	200	250	80	91%
50	30	52	80	120	160	200	90	92%
60	25	43	66	100	133	166	100	93%
80	18	32	50	75	100	125	120	93%
100	15	26	40	60	80	100	125	93%
125	12	20	32	48	64	80	130	93%
160	9	16	25	36	50	60	135	93%
200	7.5	13	20	30	40	50	140	94%
250	6	10.4	16	24	32	40	145	94%
300	5	8.6	13.2	20	26.4	33.3	160	94%
375	4	6.9	10.4	16	21.3	26.5	165	94%
400	3.7	6.5	10	15	20	25	170	95%
500	3	5.2	8	12	16	20	250	95%
600	2.5	4.3	6.4	10	13.3	16.5	275	95%
800	1.8	3.2	5	7.5	10	12.5	350	95%
1000	1.5	2.6	4	6	8	10	400	95%
1250	1.2	2	3.2	4.8	6.4	8	700	95%
1500	1	1.7	2.6	4	5.3	6.6	1000	95%
2000	0.75	1.3	2	3	4	5	1250	95%
3000	0.5	0.86	1.3	2	2.6	3.3	1500	95%
4000	0.37	0.65	1	1.5	2	2.5	7000	95%
6000	0.25	0.43	0.66	1	1.33	1.66	7125	95%
8000	0.18	0.32	0.5	0.75	1	1.25	7250	95%
10000	0.15	0.26	0.4	0.6	0.8	1	8000	95%

Model part of Phase 2 SLx Series release

所有装置均配有后部保护输出盖，带有可调节的玻璃纤维增强热固性聚酯绝缘体，可牢固地夹住电线。

可选交流输入电压

Available on 1.5 kW Models

- UI(100-240 Vac, 1-phase)

Available on 2.6 kW Models

- UI2 (200-240 Vac, 1phase)

Available on All Models

- 208 Vac, 3-Phase
- 240 Vac, 3-Phase
- 380/400 Vac, 3-Phase
- 415 Vac, 3-Phase
- 480 Vac, 3-Phase

可选集成选件

硬件

- 快速斜率选件+HS（第二阶段正式发布）
- 冲击振动增强选件 +RUG

通信接口

- CANopen +CAN
- EtherCAT +ECAT
- EtherNet/IP +EIP
- LXI TCP/IP Ethernet +LXI
- ModbusTCP +MTCP
- PROFINET +PROF

交流输入规格	
可选输入电压 参考右表规格型号，需根据需要的交流输入功率和电压选定交流输入规格，订购后不可修改	UI, 100-240 Vac, 1-phase UI2, 200-240 Vac, 1-phase 208 Vac, 3-phase 240 Vac, 3-phase 380/400 Vac, 3-phase 415 Vac, 3-phase 440 Vac, 3-phase 480 Vac 3-phase
输入电压容错范围	± 10%
交流输入电频率范围	50-400 Hz
功率因数 在最大功率时测量	> 0.99, 1-phase UI and UI2 AC inputs > 0.92, 3-phase AC inputs
交流输入电隔离电压 输入电对地	± 2000 Vdc

直流输出规格	
直流输出隔离电压 输出电对地	± 2000 Vdc
输出电压纹波	Model specific. Refer to models table.
线调整率	Voltage control: ± 0.04% of rated voltage Current control: ± 0.03% of rated current Power control: ± 0.05% of rated power
负载调整率	Voltage control: ± 0.02% of rated voltage Current control: ± 0.06% of rated current Power control: ± 0.08% of rated power
稳定度 FWHM, measured at 25°C over 8 hrs after 30 min warm-up	Voltage control: ± 0.005% of rated voltage Current control: ± 0.075% of rated current
温度系数 FWHM	Voltage control: 0.01%/°C of rated voltage Current control: 0.04%/°C of rated current Power control: 0.04%/°C of rated power
效率	Up to 95%. Model specifc. Refer to Models table.
电压上升速度 Standard models, programmable	Minimum(Slowest): Rated voltage x 2^{-15} [V/ms] Maximum(Fastest): Rated voltage x 0.00857 [V/ms]
电流上升速度 Standard models, programmable	Minimum(Slowest): Rated current x 2^{-15} [A/ms] Maximum(Fastest): Rated current x 0.00750 [A/ms]
功率上升速度 Standard models, programmable	Minimum(Slowest): Rated power x 2^{-15} [W/ms] Maximum(Fastest): Rated power x 0.00375 [W/ms]

程控接口规格	
前面板控制方式	可编码的旋钮，键盘和单数位上下箭头控制
通信接口 标准	USB Host (Front): Type B USB Host (Rear): Type B RS485 (Rear): RJ-45 MagnaLINK™: RJ-25 x 2
通信接口 选配	CANopen (+CAN): RJ-45 x 2 EtherCAT (+ECAT): RJ-45 x 2 EtherNet/IP (+EIP): RJ-45 x 2 LXI TCP/IP Ethernet (+LXI): RJ-45 ModbusTCP (+MTCP): RJ-45 x 2 PROFINET (+PROF): RJ-45 x 2
模拟量I/O接口	26-pin D-sub DB-26, female Referenced to ground; isolated from the DC output See User Manual for pin layout

程控规格	
面板和数字接口设定分辨率 前面板或程控接口控制	16-bit, 0.00153% of rated voltage, current or power
面板和数字接口设定精度 前面板或数字接口设定值与实际输出值比较	Voltage: ± 0.03% of rated voltage Current: ± 0.03% of rated current Power: ± 0.05% of rated power
面板显示和数字接口回读测量精度 前面板显示或数字接口回读测量值与实际输出值比较	Voltage: ± 0.04% of rated voltage Current: ± 0.04% of rated current Power: ± 0.06% of rated power
模拟量接口设定精度 模拟量接口设定值与实际输出值比较	Voltage: ± 0.06% of rated voltage Current: ± 0.40% of rated current Power: ± 0.06% of rated power
模拟量接口程控分辨率 0-10 V analog input	12-bit, 0.025% of rated voltage, current or power
高速输入模拟量接口设定精度 高速模拟量设定值与实际输出值比较	Voltage: ± 0.40% of rated voltage Current: ± 0.40% of rated current Power: ± 0.60% of rated power
模拟量回读精度 实际输出值和通过模拟量输出的回读值	Voltage: ± 0.06% of rated voltage Current: ± 0.06% of rated current Power: ± 0.60% of rated power
模拟量I/O接口 3个标准模拟量输入接口 一个高速模拟量输入接口 提供参考信号	High-Speed Input Sampling Rate: 2 kHz Programming Voltage: 0-10 V Monitoring Voltage: 0-10 V, 3 mA capacity Monitoring Impedance: 0.005 Ω Reference Voltage: 10 V, 20 mA capacity
数字量I/O接口 3个标准模拟量输入接口 一个高速模拟量输入接口 提供参考信号	Voltage Level: 5V Input Impedance: 10 kΩ Monitoring Voltage: 5V, 32 mA capacity Reference Voltage: 5V, 20 mA capacity

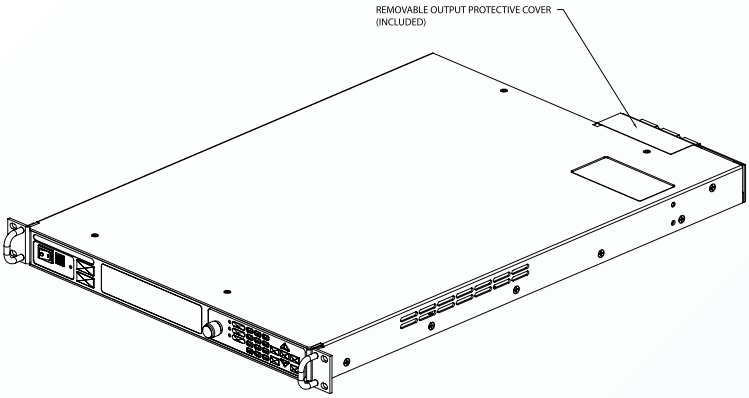
产品规格	
尺寸 所有型号	1U 1.75” H x 19” W x 24” D (4.4 x 48.3 x 61.0 cm)
重量	1.5 kW models: 32 lbs (14.52 kg) 2.6 kW models: 34 lbs (15.42 kg) 4 kW models: 35 lbs (15.88 kg) 6 kW models: 35 lbs (15.88 kg) 8 kW models: 36 lbs (16.33 kg) 10 kW models: 36 lbs (16.33 kg)
上架标准	EIA-310
尾端支撑导轨	Included

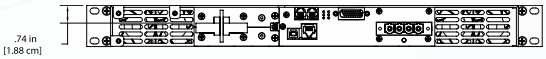
环境参数	
操作温度	0°C to 50°C
存储温度	-35°C to +85°C
湿度	Relative humidity up to 95% non-condensing
气流方向	Side air inlet, rear exhaust

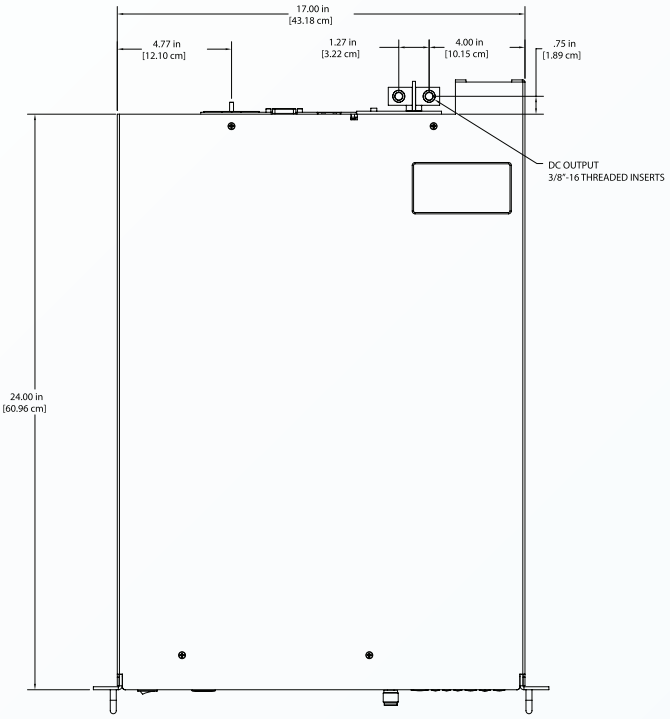
标准符合	
EMC	Complies with 2014/30/EU (EMC Directive) CISPR 22 / EN 55022 Class A
Safety	Complies with EN61010-1 and 2014/35/EU (Low Voltage Directive)
CE Mark	Yes
RoHS Compliant	Yes
REACH Compliant	Yes

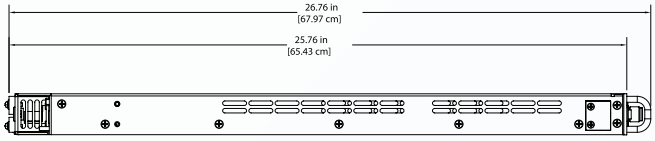
Dimensional Diagrams

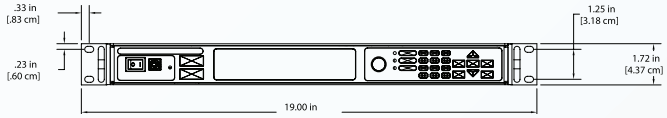
Rear metal rack-mount supports included (not shown).





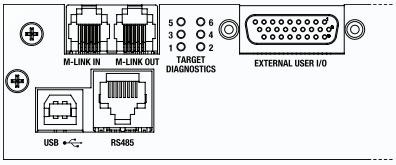






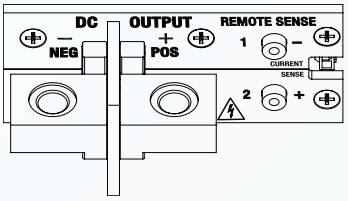
Communications Interface

Standard rear interfaces shown.
Front panel full control USB interface included (not shown).
Diagrams for optional interfaces detailed in the options section.



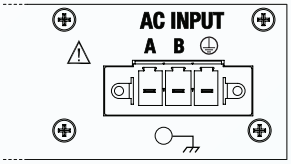
DC Output (Angled)

Qty (2) tin-plated copper bus bars with 3/8"-16 threaded inserts. Mating hardware included (not shown).
3/8" 6-32 remote voltage sense terminals.
Molex 436500227 current sense connector.



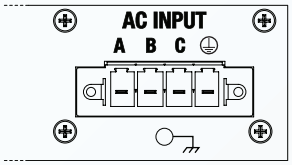
AC Input • 1-phase, 8 AWG

For SLx Series models with 1-phase UI or UI2 input.
Phoenix Contact 1720916, 2-wire + ground connector.
Pheonix Contact 1777846 mating adapter included.



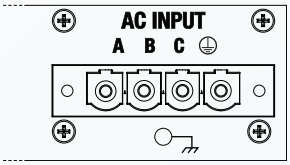
AC Input • 3-phase, 8 AWG

For SLx Series models with 3-phase input, except 10 kW models with 208/240 Vac input.
Phoenix Contact 1720929, 3-wire + ground connector.
Pheonix Contact 1777859 mating adapter included.



AC Input • 3-phase, 6 AWG

For 10 kW SLx Series models with 208/240 Vac 3-phase input.
Phoenix Contact 1998881, 3-wire + ground connector.
Pheonix Contact 1967472 mating adapter included.



3D STP file available to download from SLx Series Downloads on magna-power.com

MAGNACTRL Software

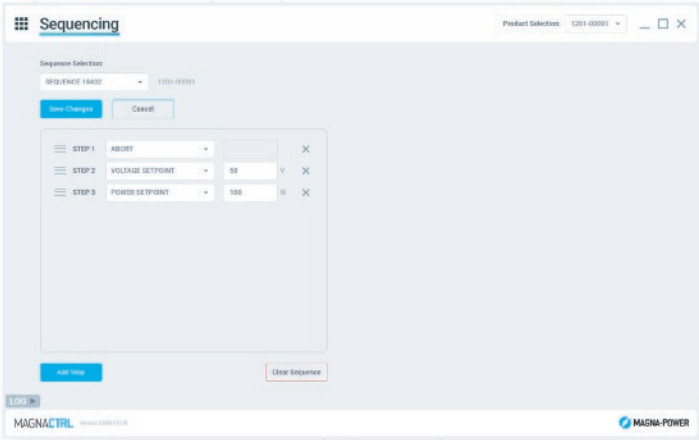
Magna-Power全新的MagnaCTRL软件是SLx的标准配置，可以提供现代化、功能丰富、多产品的图形化控制平台。MagnaCTRL可以不同的控制面板以用来控制，监控和序列编程，并且可以做固件升级。

Product Supported
ALx Series, SLx Series

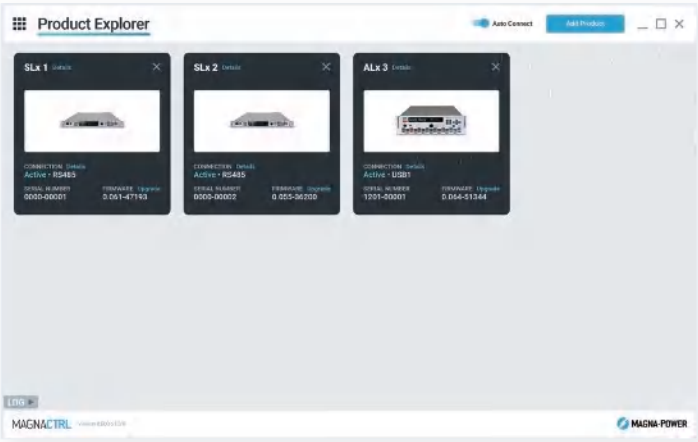
Operating Systems Supported
Microsoft Windows 10/11 (32- and 64-bit)

Communication Interfaces Supported
USB, RS485 or LXI TCP/IP Ethernet (+LXI)

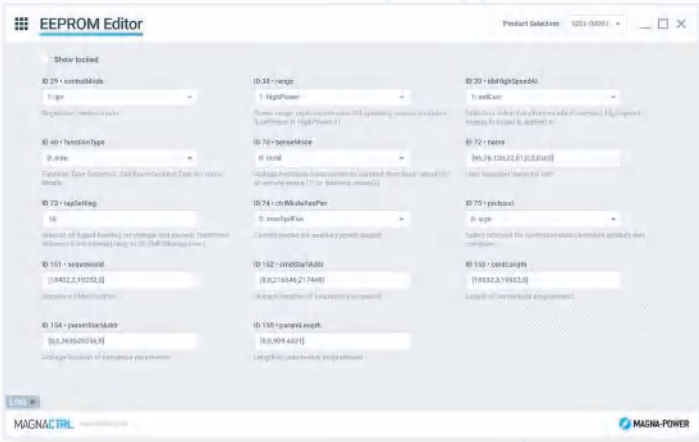
仪表面板：可以同时连接多台Magna-Power的SLx直流电源产品，建立控制平台，简单易用的拖放插件组织仪表板。



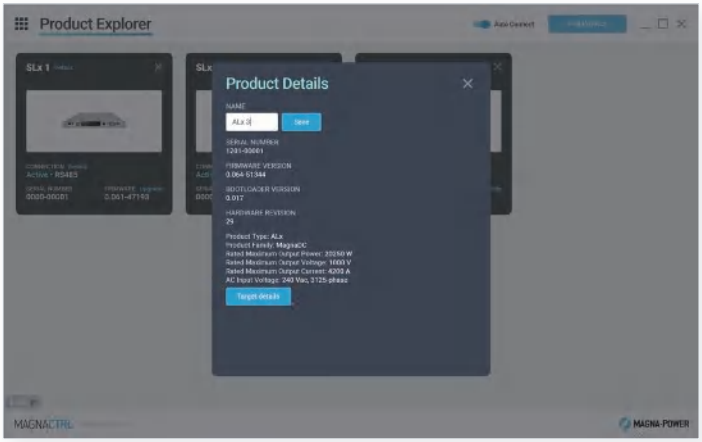
EEPROM编辑器面板：允许Magna-Power产品的技术支持人员查看内部EEPROM的配置参数。



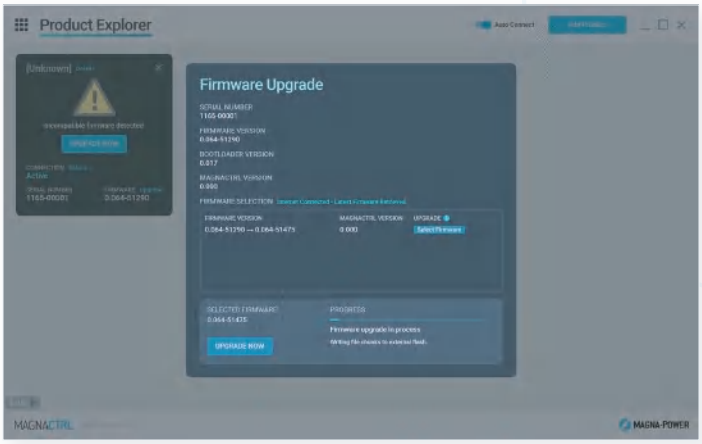
序列设置面板：根据需求点击菜单设置输出序列，不需编写任何代码。可以设置时间周期、中止和循环等指令。设置完成后，序列上传到电源后可以存储在存储器中，上传后未来无需连接电脑就可实现序列输出。(第二阶段功能发布)



固件更新：检测新版本的firmware或MagnaCTRL软件可用时，可以自动更新。如果没有互联网，以可以更新。



产品浏览器面板：可以很方便的检测到物理连接的产品，并将其添加到MagnaCTRL面板中便于访问它们。MagnaCTRL会保留产品会话连接信息，并会在下次检测到产品时自动连接。



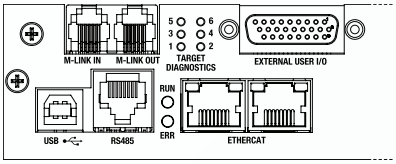
产品详细信息查看：产品评级、固件版本和硬件版本。指定假名在控制面板中进行多产品控制时，可以轻松区分产品。

Available Options

EtherCAT (+ECAT)

EtherCAT is a real-time Ethernet network protocol developed by Beckhoff Automation for communicating among multiple nodes. EtherCAT networks are formed using CAT cabling, where master and nodes can be directly wired together through RJ-45 ports, in a daisy chain configuration, without need for external networking switches. The protocol is standardized in IEC 61158 and is popular for demanding high-speed communication requirements in automation technology. As a result of its flexibility and scalability, EtherCAT can be found in a wide range of applications, including factory automation, motion control, robotics, and more.

This option provides support for the EtherCAT protocol and Ethernet over EtherCAT. The product's full command set is supported with extensive documentation detailing both connection setup and commands. Dual RJ-45 connectors are provided with bi-color activity and error LEDs.



Rear communciation interfaces with EtherCAT (+ECAT) option.

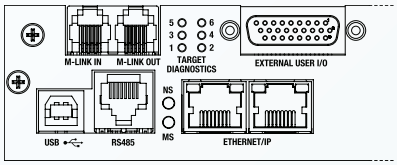
EtherNet/IP (+EIP)

The EtherNet/IP standard (EIP) is the application layer protocol for industrial automation developed by four independent groups: ODVA, the Industrial Open Ethernet Association (IOANA), Control Net International (CI) and the Industrial Ethernet Association (IEA). EtherNet/IP provides wide-ranging, comprehensive, certifiable standard in the public domain that is suitable to a wide variety of automation devices. EtherNet/IP uses a client-server model, where the client sends requests to the server, and the server responds with the requested information. The information is transmitted in the form of messages, which are divided into two types: Explicit and Implicit messages.

Magna-Power has designed its EtherNet/IP (+EIP) option to allow for seamless integration into Allen Bardley, Schneider Electric and Omron PLCs. The following are some of the key features for Magna-Power's +EIP option:

- Support for the product's full command set
- Extensive HTML- and PDF-based documentation, detailing connection setup and commands
- Dual RJ-45 connectors with bi-color activity and error LEDs
- Magna-Power developed electronic data sheet (EDS) for device discovery and network setup
- Hosted a EtherNet/IP web page for easily accessing local network settings, device parameters, and operation status

EtherNet/IP webpage hosted in Magna-Power's +EIP option with EtherNet/IP (+EIP) option.



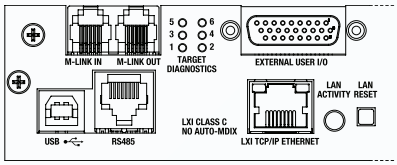
Rear communciation interfaces with EtherNet/IP (+EIP) option.

LXI TCP/IP Ethernet (+LXI)

Certified to the LXI Standard (Class C), the +LXI option allows the product to be fully controlled over an a traditional computer network with a fully integrated TCP/IP Ethernet interface.

LXI is an instrumentation platform based on industry standard Ethernet technology designed to provide modularity, flexibility, and performance to small- and medium-sized systems. All of the product's standard SCPI commands are supported over the +LXI option, along with all provided software and drivers. The LXI TCP/IP Ethernet interface also support mDNS, a protocol that allows devices to perform DNS operation on a local link, even without the presence of an administered DNS server.

LXI's advantages are exemplified in its compact, flexible package providing high-speed I/O and reliable measurements. The Magna-Power Electronics LXI TCP/IP Ethernet option includes an embedded web-server, allowing configuration of static or dynamic IP address assignment.



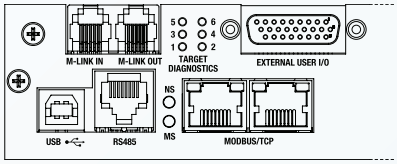
Rear communciation interfaces with LXI TCP/IP Ethernet (+LXI) option.

Modbus-TCP (+MTCP)

Modbus-TCP is a communication protocol that enables communication between industrial devices over Ethernet networks. It is an extension of the Modbus protocol, which was originally developed in the 1970s for communication between programmable logic controllers (PLCs) and other devices. Modbus-TCP uses the same protocol as Modbus, but it is transmitted over Ethernet rather than serial communication.

Modbus-TCP is a widely used protocol in industrial control and automation applications because it is open and simple to implement. It supports a wide range of devices, including PLCs, sensors, and actuators. Modbus-TCP provides fast and reliable communication, with data rates of up to 100 Mbps. It also supports multiple connections and can handle up to 65,535 devices on a single network.

This option provides support for the product's full Modbus command set over ModbusTCP with extensive documentation detailing both connection setup and commands. Dual RJ-45 connectors are provided with bi-color activity and error LEDs.



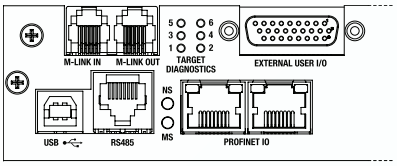
Available Options Continued

PROFINET (+PROF)

PROFINET is a widely-used industrial Ethernet protocol for communication between automation systems and devices in manufacturing and process industries. It was developed by PROFIBUS & PROFINET International (PI), an organization that oversees the development and maintenance of the protocol. PROFINET is used mainly by Siemens PLCs.

PROFINET is widely adopted by many leading manufacturers and system integrators in different industries due to its reliability, flexibility, and interoperability. It has a large ecosystem of compatible products and tools, and is supported by a global network of PI-certified experts and service providers.

This option provides support for the product's full command set over PROFINET with extensive documentation detailing both connection setup and commands. Dual RJ-45 connectors are provided with bi-color activity and error LEDs.



Rear communciation interfaces with PROFINET (+PROF) option.

Ruggedized (+RUG)

The Ruggedized Option (+RUG) provides additional mechanical security for large power components and sub-assemblies within SLx Series products. Board mounted through components, such as capacitors, inductors, and daughter boards are staked using an UV-cured epoxy in accordance with the recommendations from relevant IPC-A-610G standards.

SLx Series units with the Ruggedized Option have been independently tested to comply with the following MIL-STD-810G shock and vibration specifications:

- MIL-STD-810G CHG1 Method 516.7 Functional Shock, Procedure I; which subjects the product to 40G, 11 ms terminal saw tooth pulse; three shocks in each direction along three mutually perpendicular axes
- MIL-STD-810G CHG1 Method 514.7 Vibration; which subjects the product to two hours of vibration per axis along three mutually perpendicular axes

All products with the Ruggedized Option maintain ambient operating temperatures from -25°C to 50°C and storage temperatures from -35°C to +85°C.