

Product:

**MXP8PN24**

Title:

**Installation and User Guide**



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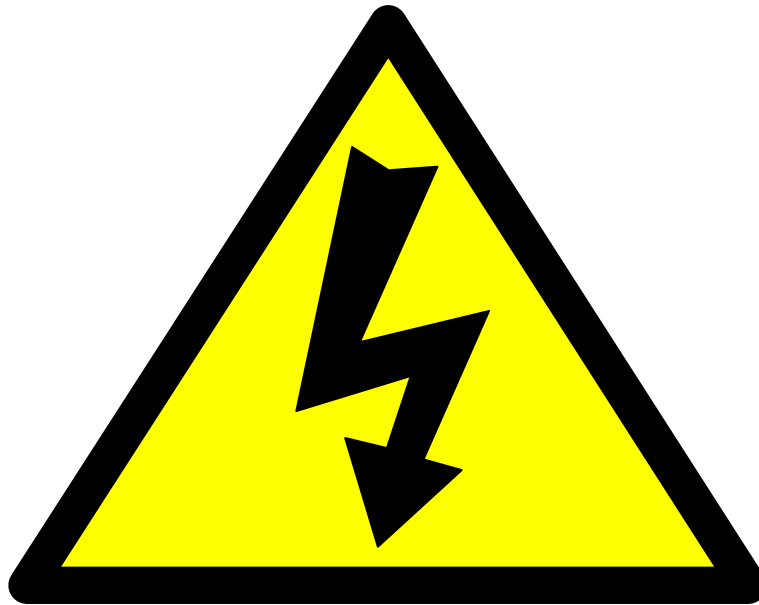
## Change History

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1	15/Nov/2021	JS	All All 3.3	Created from 80398-4 Template updated Added connectors details and pinout indication

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# SAFETY



## DANGER HIGH VOLTAGE RISK OF ELECTROCUTION

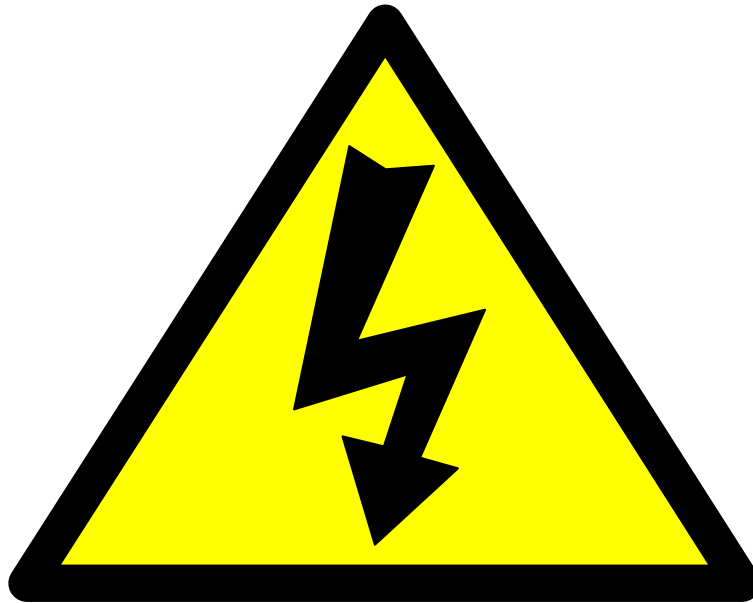
**Observe extreme caution when working with this equipment**

- High voltage power supplies must always be connected to protective earth
- Do not touch connections unless equipment is turned off and the capacitance of both the load and power supply are grounded
- Allow adequate time for discharge of internal capacitance of the power supply
- Do not ground yourself or work under wet or damp conditions

### Servicing Safety

- Maintenance may require removing the Instrument cover with the power on
- Servicing should only be done by qualified personnel aware of the hazards
- Return to supplier for servicing

# SÉCURITÉ



## DANGER HAUTE TENSION RISQUE D'ÉLECTROCUTION

Observez une extrême prudence lorsque vous travaillez avec cet équipement

- Les alimentations haute tension doivent toujours être connectées au conducteur de protection.
- Ne pas toucher les connexions à moins que l'équipement soit éteint et que la capacité de la charge et de l'alimentation électrique ne soit mise à la terre.
- Prévoir un temps suffisant pour la décharge de la capacité interne de l'alimentation.
- Ne pas vous mettre à la terre ou travailler dans des conditions humides.

### Sécurité d'entretien

- L'entretien ne doit être effectué que par un personnel qualifié et conscient des dangers.
- Il n'y a pas de pièce remplaçables par l'utilisateur dans l'unité, retourner au fournisseur pour l'entretien.

## 1. Unit Description

Spellman's MX8 Plus is a well-regulated high performance fast reversible supply featuring a 25ms "hot switchable" polarity reversing capability. This unit consist of one chassis containing the HV output and control circuits for building into the final system.

The current return paths are to the chassis, which is grounded to the system earth by fixings.

Control and monitoring is via a hard-wired interface connector

### 1.1 Unit Ratings

#### 1.1.1 Power Input

Voltage: 24 Vdc  $\pm$  10%  
Current: <500mA nominal continuous  
<1200mA peak during reversing

#### 1.1.2 HV Output

Voltage:  $\pm$  8 kVdc  
Current: 100 $\mu$ A maximum

### 1.2 Environmental conditions

Operating Temperature: 5°C to +45°C  
Storage Temperature: -35°C to +85°C. A conditioning period of three hours minimum is required after exposure to Storage Temperatures.  
Humidity: 0% to 80% RH (non-condensing)  
Altitude: 2000m ASL at full power

## 2. Safety

The HV outputs of the unit are hazardous and the conditions of this manual must be complied with to maintain safety. Operating the unit in a manner not specified in this manual may impair the protection against electric shock provided by the unit.





The unit is contained in an earthed case. The unit shall be properly bonded to the main protective earth termination in the end product via the case.

The unit has been evaluated for use in a Pollution Degree 2, Installation Category II environment.

Consideration should be given to conducting the following tests with the unit installed in the end product:

- Dielectric Voltage Withstand Test, between live parts of the unit and the end product chassis.
- Permissible Limits Tests with the unit installed in the end product.
- Temperatures on power electronic components, transformer windings and accessible surfaces.

### Meaning of Symbols

SYMBOL	MEANING
	Refer to manual before operating
	Caution, possibility of electric shock
	Protective conductor terminal (PE)
	Functional Earth

### 2.1 Unit Grounding

The unit is contained in an earthed case. The case of the unit shall be properly bonded to the main protective earth termination in the end product.

### 3. Installing the Unit

#### 3.1 Initial Inspection

Inspect the package exterior for evidence of damage due to handling in transit. Notify the carrier and Spellman immediately if damage is evident. Do not destroy or remove any of the packing material used in a damaged shipment.

After unpacking, inspect the panel and chassis for visible damage.

Note: Failure to comply with the above could compromise the safe operation of the unit and invalidate the warranty.

#### 3.2 Electrical Installation

The unit is designed for indoor use and is to be supplied from a double insulated, UL recognised, 24V dc supply.

The units must be terminated safely before operation. Hazardous voltages will be exposed if the connector is removed whilst the unit is enabled.

The unit must be switched off for at least one minute before disconnecting any of the connectors.

The unit shall be properly bonded to the main protective earthing termination in the end product using the bolt down point.

The input and output connectors are not intended for field connections and should only be connected to internal wiring in the end use equipment.

The unit is intended for use as a component and no surface of the unit should be accessible in the end product.

The unit is contained in an enclosed case and can be mounted in any orientation. A cooling air flow is recommended.

### 3.3 Connections and Unit Operation

#### 3.3.1 Input / Output Molex Mini-Fit Jr connector

pin#	Signal	I/O	Description
1	+24VDC	I	DC in
2	+24VDC Return	I	Ground return for DC in
3	Enable	I	enable/inhibit input. TTL high is enabled, TTL low is disabled*
4	Vmon	O	output voltage monitor. 0 to +8V for 0V to ±8kV output (accuracy ±1% of max output, always positive) Output impedance 10kΩ
5	Vprog	I	voltage control input. 0 to +8V for 0V to ±8kV output (accuracy ±1% of max output, always positive)
6	Imon	O	current monitor output. 0 - 10V for 0A to 100µA (accuracy ±2% of max output, always positive). Output impedance 10kΩ.
7	Iprog	I	current control input. 0 to +10V for 0A to 100µA (accuracy ±1% of max output, always positive)
8	Polarity control	I	polarity control input. TTL high is positive, TTL low is negative*
9	Analog Ground	-	analogue ground
10	V/I Indicator	O	current/voltage control indicator. TTL compatible output (3.3V max). TTL high when in current mode. TTL low when in voltage mode. Output impedance 1kΩ.
11-14			Pins not used

\*Note: TTL input. The threshold is set to 1.65V for use with 3.3V or 5V input levels although the input will tolerate up to 15V being applied.

Receptacle: Molex Mini-Fit Jr., Dual Row, 14 Circuits. Series: 5557 Part number : 39-01-2140

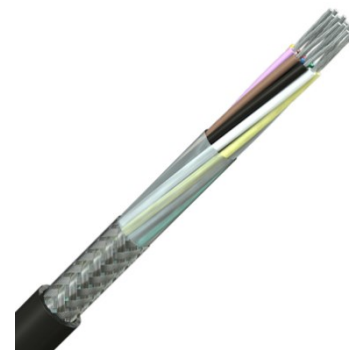
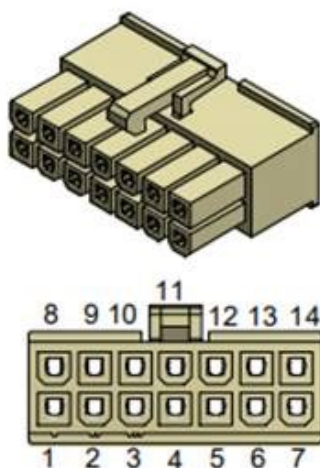
Mating connector is not provided.

Please see Molex product page for range of mating connectors (for example Molex part number 39-01-2141) and crimps (for example Molex part number 39-00-0040):

[https://www.molex.com/molex/products/part-detail/crimp\\_housings/0039012140](https://www.molex.com/molex/products/part-detail/crimp_housings/0039012140)

Cable: FS cables 12 core braid screen 7-2-12C Part number: 39300212 Length: 508 mm

Receptacle pinout:



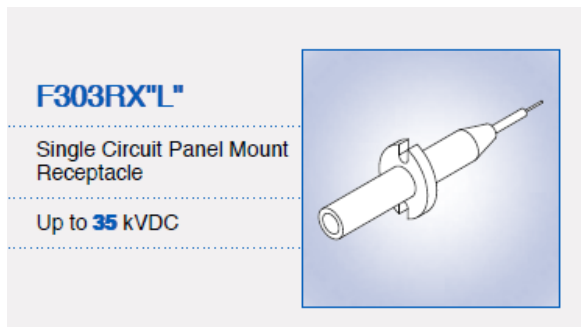


### 3.3.2 HV Output Connector

Manufacturer: Alden

Series: F-SERIES

Part number: F303RX



Mating connector is not provided.

Please see Amphenol Alden High Voltage Catalogue for range of mating cables (from Catalogue: all F Series plug will mate with the F303RX receptacle) for example F602RX"L".

<https://www.amphenolalden.com/products-solutions/technical-resources>

The mating cables are not shielded so the load return must be provided through adequate low impedance and shortest possible connection to the power supply chassis.

### 3.4 Mechanical Installation

The unit shall be fixed in place in the end user system using screws on the hold down points provided. The units should only be used in a Pollution Degree 2 Installation Category II environment.

The units are intended for use as a component and no surface of the unit should be accessible in the end product.

Unit weight: 1.1 kg

Mechanical Dimensions - see drawing in Appendix A

## Appendix A - Mechanical layout

