

Instruction leaflet for the MX20 series, 20kV reversible power supplies (including /461 model)

Title: Instruction leaflet for the MX20 series, 20kV reversible power supply

Document Number: 80481-4



APPROVAL

Issue	1	2	3
Date	05/06/06		
Issuing Authority	I-0683		
Engineering Approval			
Sales/Marketing Approval			



**DANGER
HIGH VOLTAGE
RISK OF ELECTROCUTION**

- Observe extreme caution when working with this equipment.
- High voltage power supplies must always be grounded.
- 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

- This unit is not user serviceable return to supplier for repair/service

1. Introduction

The MX20 series are a range of dc input, 20kV output reversible high voltage supplies, designed to provide a high quality dc output for a wide range of instrumentation and analytical applications. They are particularly suited to mass spectrometry application. A number of versions are available to cater for different levels of performance in terms of reversing speed, output ripple and output current. All versions feature a logic signal input to control output polarity reversal, a HV inhibit feature, along with a voltage monitor. Models are available with fixed output voltage or variable output voltage, current monitor and current mode control. The units are designed for bulkhead mounting and are fully encapsulated to provide excellent protection against shock, vibration, and the possible ingress of moisture.

2. Basic Specifications

(for full specifications refer to unit specifications 80481-1 and 80399-1)

Input Voltage:	+24Vdc, ± 0.5 volts
Output Voltage:	± 200 Vdc to ± 20 kV
Output Current:	0 to 100uA
Polarity:	< 2s for +20kV to -20kV settling to <0.1%. <0.5s for +20kV to -20kV settling to <10%. Remotely reversible via logic signal, unit incorporates circuitry to minimise the effects of low programmed current on reversing time. Polarity reversal time applies when current is programmed to 3uA or above.
Voltage control:	0 to +10V analog input for 0V to 20kV output (accuracy $\pm 2\%$ of max output, always positive).
Polarity Change:	Open circuit or >10V is seen as a high input and will give negative output. <4V = low for positive output. Driver must be capable of sinking 1mA. TTL option available.
Enable:	Open circuit or >10V is seen as a high input and will inhibit the output. <4V = low for normal operation. Driver must be capable of sinking 2mA. TTL option available.
Voltage Monitor:	0 to +10V analog output for 0V to ± 20 kV (accuracy $\pm 2\%$ of max output, always positive).
Current control:	(when fitted) 0 to +10V analog input for 0uA to 100uA output (accuracy 5% of max output, always positive).
Current Monitor:	(when fitted) Buffered 0 - 10V analog output for 0uA to 100uA (accuracy $\pm 5\%$ of max output, always positive).
Operating Temperature:	5°C to +45°C
Storage Temperature:	-35°C to +85°C.

3. Installation

3.1. Explanation of Symbols



This symbol means Caution, risk of danger and the installation manual should be consulted before proceeding.



This symbol means Caution, risk of electric shock.



This symbol indicates the Functional Earth (ground) terminal.



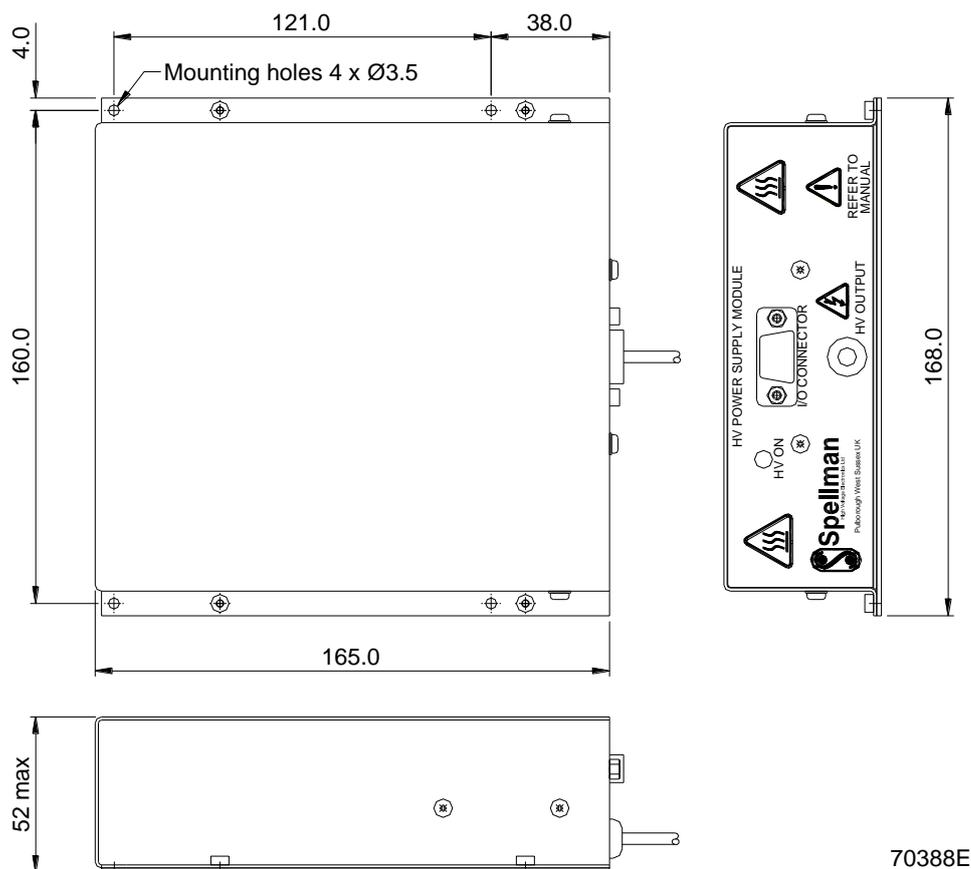
This symbol means Caution, hot surface

3.2. Installation Considerations

- a) The unit must be properly bonded to the main protective earthing termination in the end product.
- b) Consideration should be given to the conduct of the following tests with the power supply installed in the end product :
 - i) Dielectric voltage withstand test, between live parts of the power supply and the end product chassis.
 - ii) Permissible limit tests with the power supply installed in the end product.
 - iii) Temperatures on power electronic components, and accessible surfaces.
- c) The input and output connections are not suitable as field connections and are only intended for connection to internal wiring inside the end product.

3.3. Mechanical Details

The mechanical outline is shown in the figure below :-



70388E

3.4. Input/output Connections

The module pin numbers are shown in the table below along with a brief description of each signal :-

3.3.1 Input connections

Pin No.	Signal	Level/Range
1	Voltage Monitor	0 to +10V output
2	Inhibit	
3	Current control option (Not connected on standard unit)	0 to +10V input
4	0V	
5	Current monitor (not fitted on /461 model)	0 to +10V output
6	Polarity Change	
7	Voltage control	0 to +10V input
8	24V DC Input	
9	0V	

3.3.2 The HV output is via a 1m long un - terminated URM76 LSF screened cable.

CHANGE HISTORY

Section	Reason for Change	Issue
All	First Draft	1