

# 5W MINIATURE HIGH VOLTAGE MODULES 2.5kV TO 10kV

## 3590 Series

### Applications:

Mass spectrometers, nuclear instrumentation, ion pump, CRT, image intensifier.

- 2.5kV, 5kV and 10kV versions
- Positive and negative polarity options
- Remote voltage programming or potentiometer setting
- Voltage monitor & current monitor included
- Encapsulated in screened metal case for reduced EMI
- Flashover & short circuit protected
- UL approved



This range of high performance 5W high voltage power supplies has been specifically designed for applications where space is at a premium. These compact DC to DC converter modules operate from a dc supply of either 12V or 24V (nominal) and provide an accurately controlled high voltage output. The use of high stability components within the feedback system ensures a low temperature coefficient and good long & short term drift making the 3590 series ideal for use in many low power and portable applications. The output voltage may be controlled from 50V to maximum (2.5, 5 or 10kV) by means of an external control voltage of 0 to +5V (or +10V to special order). Monitoring of output voltage and current are also provided as are fixed and variable references.

### ELECTRICAL SPECIFICATION: 3590 SERIES

UNIT TYPE (180° CONNECTOR)	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	POLARITY
3590-1420	12V	+2.5kV	2mA	Positive
3590-1D20	24V	+2.5kV	2mA	Positive
3590-1120	12V	+5kV	1mA	Positive
3590-1A20	24V	+5kV	1mA	Positive
3590-1320	12V	+10kV	0.5mA	Positive
3590-1C20	24V	+10kV	0.5mA	Positive
3590-2xxx		As above for Negative equivalents		Negative
3590-xxx1		As above for 0 to +10V control input		

### ELECTRICAL SPECIFICATION

Input (12V type):	+10.8V to +15.6V dc. No load current: 120mA at 12V i/p. Full load current: 730mA at 12V i/p.
Input (24V type):	+21.6V to +30V dc. No load current: 80mA at 24V i/p. Full load current: 360mA at 24V i/p.
Output ripple:	500mV peak to peak (typical)
Line regulation:	<75ppm for a 1V change in input voltage
Load regulation:	2.5kV models: <1500ppm for zero to full load. Other models: <500ppm for zero to full load.
Drift (after 1 hour warm up)	<150ppm over 8 hour period, <100ppm over 1 hour
Protection	Current limited to 130%. Protected against intermittent flashover to ground
Control of Output	0 to 5V for 0 to 100% rated output voltage, Zin=1M 0 to 10V option Zin=20k
Reference output (fixed)	+5V ±2%, maximum current 1.5mA, temp-co 50ppm / °C
Reference output (variable):	Zero to +5V, multiturn potentiometer
Voltage monitor	Zero to +5V for zero to 100% rated output voltage, ±1% (Zout= 10k)
Current monitor	Zero to +5V for zero to 100% rated output current, ±5% (Zout= 10k)

# 3590 Series

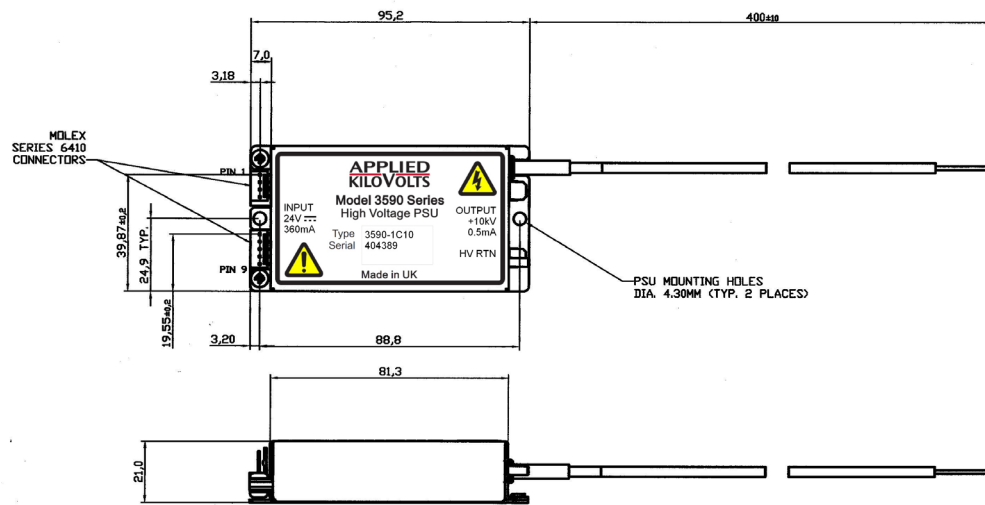
## MECHANICAL SPECIFICATION

Dimensions:	95.2 x 49.8 x 20 mm (3.75" x 1.96" x .79")		
Weight:	150g (5.3 oz.) approximately		
Mountings centres:	2 holes 4.2mm diameter on 88.8 (3.5") centres		
Input / control:	0.1" pitch connectors (Molex : crimp 08-50-0032; 4 way housing type: 22-01-2045; 5 way housing type: 22-01-2055)		
Output:	Flying lead, red UL3239 un-screened 20kV cable 0.4m long. HV Return: M3 stud or fixings.		

## ENVIRONMENTAL SPECIFICATION

Temperature, operating:	0°C to +50°C. De-rate above 35°C linearly to 80% power at 50°C	Humidity (RH) <31°C non-condensing:	80% maximum non-condensing
Temperature, storage:	0°C to +80°C	Humidity (RH) >30°C non-condensing:	Decrease linearly to 50% at 40°C
Altitude, operating:	Up to 2,000m	Altitude, storage:	Up to 18,000m

The unit is to be supplied from a current limited supply providing 24V dc, impulse limited to overvoltage Category I (of IEC60364-4-443).  
For use in an environment of pollution degree 2.



## PIN ASSIGNMENTS

- 1 +24V or +12V dc input
- 2 0V Power return
- 3 Signal ground
- 4 Fixed reference output (+5V)
- 5 Control i/p (0 to +5V)
- 6 Variable reference output (0 to+5V)
- 7 Voltage monitor o/p
- 8 Current monitor o/p
- 9 Not connected

## About Harris Corporation

Harris Corporation is a leading technology innovator, solving our customers' toughest mission-critical challenges by providing solutions that connect, inform and protect. Harris supports customers in more than 125 countries, has approximately \$8 billion in annual revenue and 22,000 employees worldwide. The company is organized into four business segments: Communication Systems, Space and Intelligence Systems, Electronic Systems, and Critical Networks.

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