PHOTONIS USA
P.O. Box 1159
Sturbridge, MA 01566
United States of America

T +1 800 648 1800 (US & Can)
T +1 508 347 4000 (Intl calls)
F +1 508 347 3849
E sales@usa.photonis.com
www.photonis.com

Chevron MCP and Detector Initial Start-up and Electrical Test Procedure

NOTES: Read the entire start-up procedure before applying any voltages.
Refer to Diagram 1 - Typical Wiring Diagrams - for each detection mode.
The suggested bias voltage for a Resistive Anode Encoder (RAE) is 300 volts.

CAUTION:
Do not exceed 1000V per Microchannel Plate (MCP) for 40:1 aspect ratio MCPS. 1200V/MCP for 60:1 aspect ratio MCPS.
When installing flange mounted detectors gradually tighten the bolts in a star pattern (DO NOT exceed 20 foot-pounds per bolt). Failure to do so could cause the fiberoptic to crack.

RECOMMENDATIONS:
For optimal lifetime, operate the detector at the minimum voltage necessary to obtain a useable signal.
Do not operate the phosphor screen at a higher than recommended potential.

PROCEDURE
Make all connections to the assembly.
Check all electrical connections for possible shorted or open circuits.
Pump down to $2x10^{-6}$ torr and hold for at least 15 hours.

VOLTAGE APPLICATION

Electron/Negative Ion/UV Photon Detection: (for a metal anode or Resistive Anode Encoder, skip to next section)

Phosphor Screen
Ground the input of the assembly (V_i). Apply voltage to the phosphor screen (V_a) in +250V, 1 minute increments. Stop at +1.0 kV.
Apply voltage to the output of the assembly (V_o) in +100V, 2 minute increments. Stop at +1.0 kV.
Increase the voltage to Va in +100V, 5 minute increments to +3.0 kV. Wait 5 minutes.
Increase the voltage to Va in +100V, 10 minute increments to +4.0 kV. Wait 5 minutes.
Simultaneously increase the voltage to V_a and V_o in +100V, 10 minute increments to +4.5 kV at V_a and +1.5 kV at V_o.
For screens requiring a 5.0 kV potential - Increase the voltage to V_a in +100V, 10 minute increments to +5.5 kV. Wait 10 minutes.
For screens requiring a 5.0 kV potential - Increase the voltage to V_a in +50V, 10 minute increments to +6.5 kV. Wait 10 minutes.
Simultaneously increase the voltage to V_a and V_o in +50V, 10 minute increments to +2.0 kV at V_o.
When through using the detector, turn off the voltage to V_a. When the voltage drops below +2.0 kV, turn off the voltage to V_o.

Metal Anode/Resistive Anode Encoder
Ground the input of the assembly (V_i). Apply the specified anode bias to V_a.
Increase the voltage to both V_a and V_o in +100V, 2 minute increments by +1.0 kV at V_a and to +1.0 kV at V_o. Wait 5 minutes.
Increase the voltage at V_o and V_a in +100V, 5 minute increments to +1.5 kV at V_o. Wait 10 minutes.
Increase the voltage at V_o and V_a in +50V, 5 minute increments to +2.0 kV at V_o.
When through using the detector, turn off the voltages to V_o and V_a.

Positive Ion/UV Photon Detection (for a metal anode or Resistive Anode Encoder, skip to next section).

Phosphor Screen
Ground the output of the assembly (V_o). Apply voltage to the phosphor sheen (V_a) in +250V, 1 minute increments. Stop at +1.0 kV.
Apply voltage to the input of the assembly (V_i) in -100V, 2 minute increments. Stop at -1.0 kV.
Increase the voltage to V_a in +100V, 5 minute increments to +2.0 kV. Wait 5 minutes.
Increase the voltage to V_a in +100V, 10 minute increments to +3.0 kV. Wait 5 minutes.
Adjust the voltage to V_i in -100V, 10 minute increments to -1.5 kV.
For screens requiring a 5.0 kV potential - Increase the voltage to V_a in +100V, 10 minute increments to +4.0 kV. Wait 10 minutes.
For screens requiring a 5.0 kV potential - Increase the voltage to V_a in +50V, 10 minute increments to +5.0 kV. Wait 10 minutes.
Adjust the voltage to V_i in -50V, 10 minute increments to -2.0 kV.
When through using the detector, turn off the voltages to the V_i and V_a.

Metal Anode/Resistive Anode Encoder
Ground the output of the assembly (V_o). Apply the specified anode bias to V_a.
Apply voltage to V_i in -100V, 2 minute increments. Stop at -1.0 kV. Wait 2 minutes.
Adjust the voltage at V_i in -100V, 5 minute increments to -1.5 kV. Wait 5 minutes.
Adjust the voltage at V_i in -50V, 10 minute increments to -2.0 kV.
When through using the detector, turn off the voltages to V_i and V_a.

TYPICAL WIRING DIAGRAMS