Quad High-Voltage Interlock

Features

- Hardware comparator detection of high voltage errors
- Hardware control of safety-rated interlock relays.
- Four independent channels
- Can be connected in series or parallel with high voltage source
- Channels may be ganged for redundancy
- Monitor output port for M40 device allows control system monitoring of bias voltage levels.

Applications	• Monitoring bias voltage applied to ionization chambers in critical applications and interlocking out of tolerance conditions.

Specifications

High voltage inputs	Number of independent input/outputs	Four pairs
	Maximum operating voltage	+/- 3 kV
	Absolute maximum input voltage	+/- 4 kV
	Resistive load	1 Gohm
Comparators	Number of independent comparators	Four
	Settings for nominal voltage	500, 1000, 1500, 2000, 2500, 3000 Polarity-independent; operates on absolute value
	Fault condition	Faults when HV drops below threshold
	Tolerance band	10% of nominal (internal setting option 5%)
	Hysteresis	0.5% of nominal
Relays	Number of independent relays	Four, safety rated (SR4D4)
	Switching time	<= 1 msec to open from detection of fault
	Lifetime, cycles	> 5e6
	Maximum contact current	8 amps

Specifications (continued)

Power input	+24V (+/- 2V) DC, 300mA maximum
Controls	Six position rotary switch for nominal high voltage setting (one per channel Internal jumper (Jpr1) to select 5% tolerance.
Displays	High voltage status good LEDs (green, one per channel) High voltage status bad LEDs (red, one per channel)
Case material	Stainless steel sheet.
Weight	1.64kg (3.6 lb)
Operating environment	10 to 35C, < 80% humidity, non-condensing, vibration < 0.2g all axes, 1 to 100Hz
Storage environment	0 to 50C, < 80% humidity, non-condensing, vibration < 2g all axes, 1 to 100Hz

Connectors

Power in	2.1mm threaded jack. Mates with Switchcraft S761K or equivalent.
High voltage	Four SHV in Four SHV out
Interlock	Two Weidmuller 1793470000 eight pin 3.81 mm. Mates with Weidmuller 1793090000. Connector A (J3) Connector B (J4)

Connector A (J3)

1	24 V return	14	24 V return
2	+24 VDC out	15	+24 VDC out
3	Channel 1 relay contact 1	16	Channel 2 relay contact 1
4	Channel 1 relay contact 2	17	Channel 2 relay contact 2

Connector B (J4)

1	24 V return	14	24 V return
2	+24 VDC out	15	+24 VDC out
3	Channel 3 relay contact 1	16	Channel 4 relay contact 1
4	Channel 3 relay contact 2	17	Channel 4 relay contact 2

Connectors (continued)

Monitor

44-pin high density DSub male. Pin-to-pin compatible with the Pyramid M40 High Density I/O device.

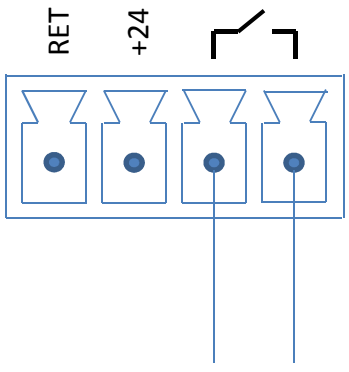
1	Vmon Ch3	AI_7	16	Vmon Ch4	AI_8	31	n/c	-
2	Vmon Ch1	AI_5	17	Vmon Ch2	AI_6	32	n/c	-
3	Vref Ch3	AI_3	18	Vref Ch4	AI_4	33	n/c	-
4	Vref Ch1	AI_1	19	Vref Ch2	AI_2	34	Relay posn Ch1	DI_1
5	AGnd	-	20	Relay posn Ch2	DI_2	35	Relay posn Ch3	DI_3
6	AGnd	-	21	Relay posn Ch4	DI_4	36	Fault Ch1	DI_5
7	AGnd	-	22	Fault Ch2	DI_6	37	Fault Ch3	DI_7
8	AGnd	-	23	Fault Ch4	DI_8	38	n/c	-
9	AGnd	-	24	n/c	-	39	n/c	-
10	AGnd	-	25	n/c	-	40	n/c	-
11	AGnd	-	26	n/c	-	41	n/c	-
12	n/c	-	27	n/c	-	42	n/c	-
13	n/c	-	28	n/c	-	43	AGnd	-
14	n/c	-	29	n/c	-	44	n/c	-
15	n/c	-	30	n/c	-			

All analog voltages are scaled 1V / kV.
All digital levels are Hi = OK.
M40 analog (AI_x) and digital (DI_x) input functions are indicated.

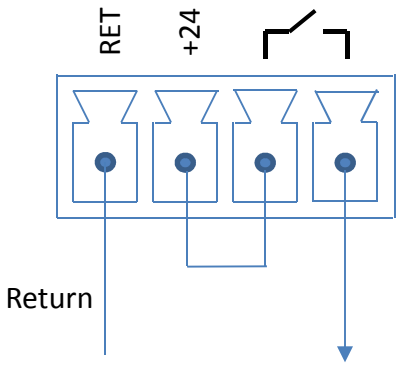
Connection options

Logic options

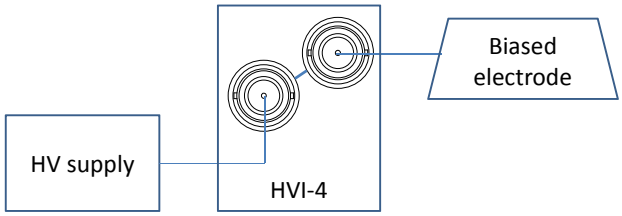
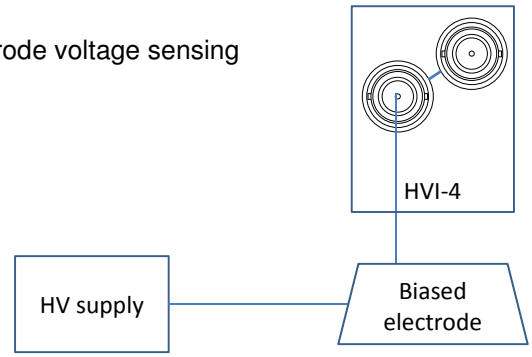
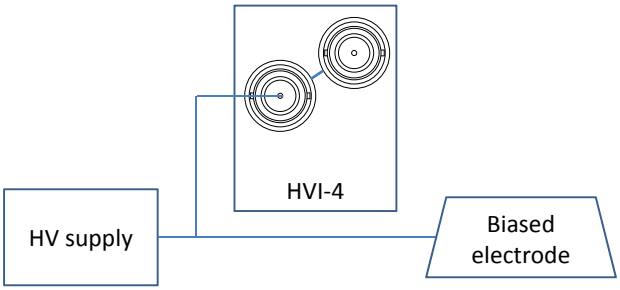
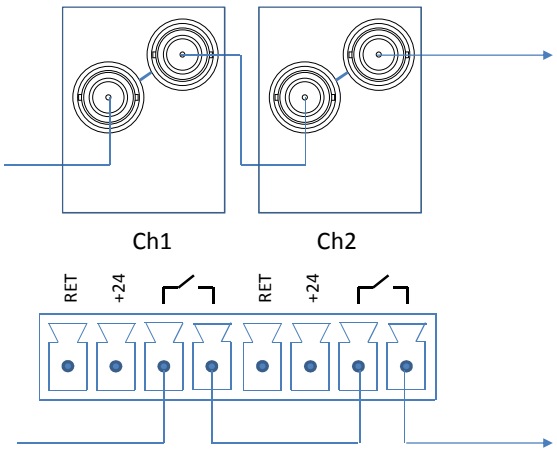
Floating relay contacts

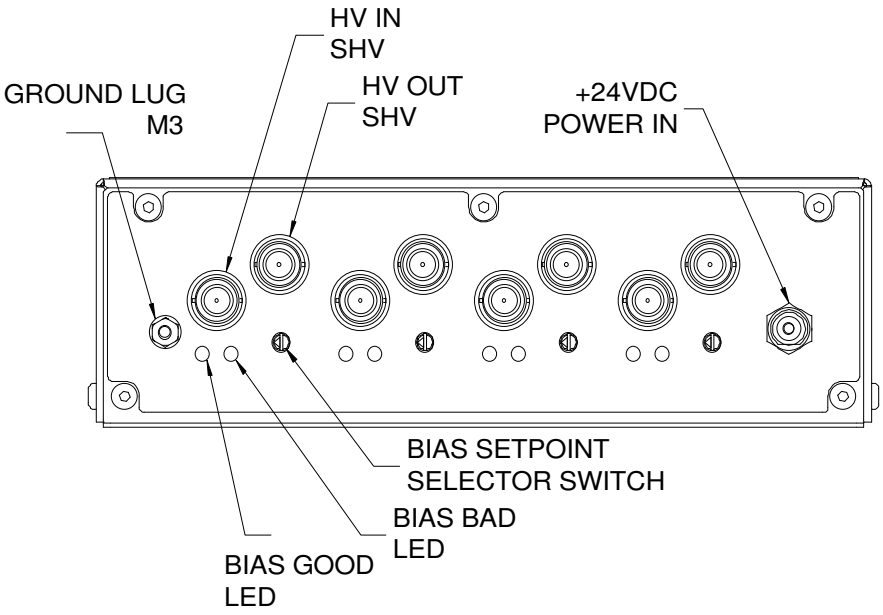


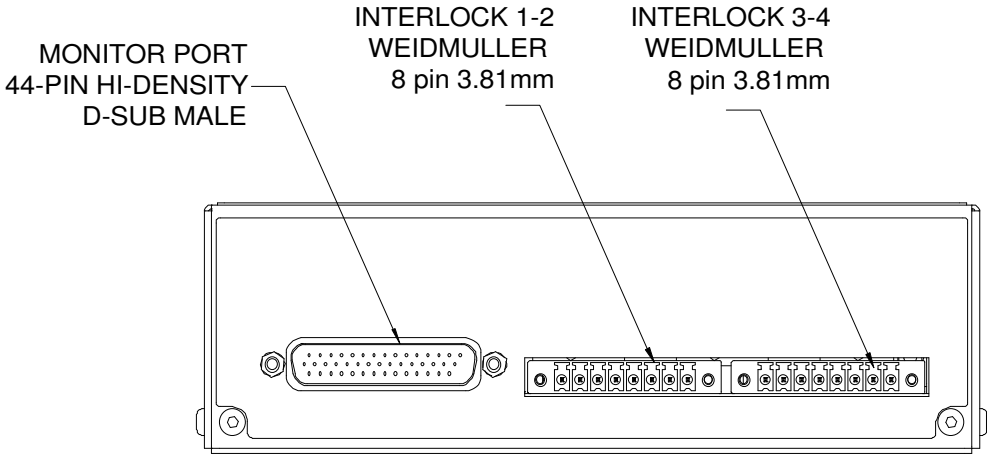
24V logic



Connection options (continued)

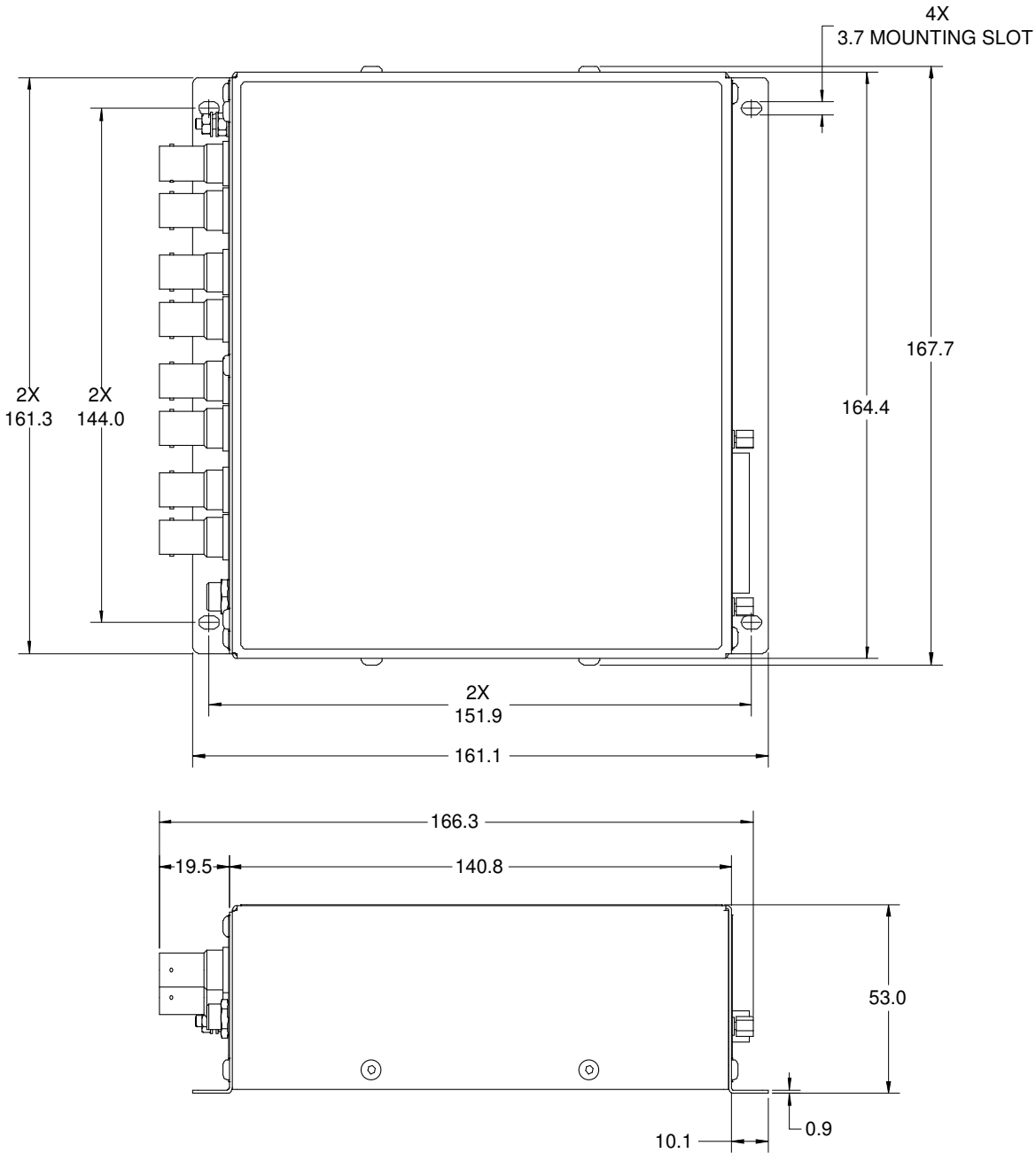
HV sampling	Series / in-line  Series / electrode voltage sensing  Parallel 
Redundant interlocking	





Ordering information

HVI-4	HVI-4 Quad High Voltage Interlock



Dims mm

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