

IMPROVED  
BIASING  
STABILITY

SAME  
ELECTRICAL INTERFACE  
FOR ALL  
VIAMP TYPES

OPTIMIZED  
FOR OPERATION WITH  
VICO-DV 3.0  
WITH KETEK DPP3

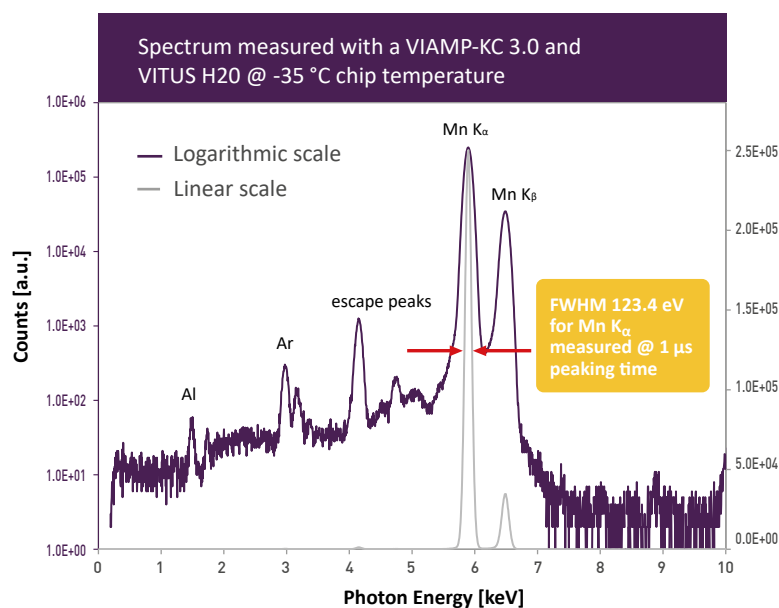
VIAMP

## VIAMP FAMILY PRODUCT GENERATION 3.0

The VIAMP preamplifier modules are specially designed OEM printed circuit boards for operation with KETEK's VITUS Silicon Drift Detectors (SDD). The assembly comprises an ultra-low noise, ramped reset type electronic preamplifier of positive polarity with onboard settings and filtering for all necessary SDD bias voltages.

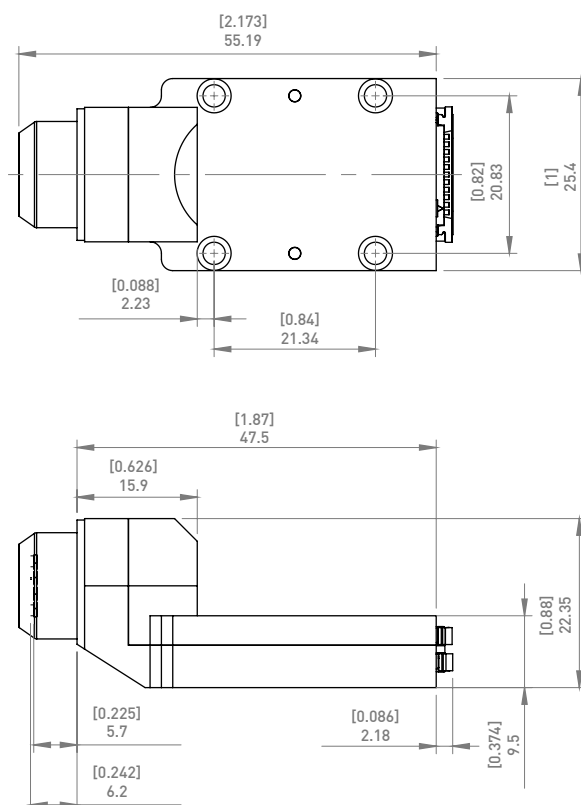
There are different Al housing options functioning as an appropriate heat sink. Beside KETEK's three standard housings, customized versions are available on request as well.

- Ultra-low noise preamplifier
- Ramped output, positive polarity
- Low power consumption
- Available with Graphene based VITUS SDDs
- Improved quantum efficiency for higher energies in combination with VICO-DV 3.0 with KETEK DPP3
- Flex lead connection lengths from 50 mm to 200 mm
- OEM solution for mobile XRF applications
- Guaranteed energy resolution for Mn  $K_{\alpha}$  line: FWHM  $\leq 133$  eV @  $1 \mu\text{s}$  peaking time and  $-35^{\circ}\text{C}$  SDD chip temperature
- Guaranteed peak to background  $> 15000$ , typical  $> 20000$



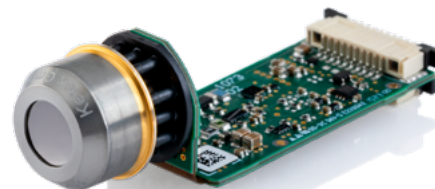
## VIAMP KC 3.0

## WITH STANDARD HOUSING FOR VITUS H7 TO H50



## VIAMP KE 3.0

## WITHOUT HOUSING FOR VITUS H7 TO H50



### VIAMP 3.0 OPERATIONAL PARAMETERS

Parameter	Typical	Maximum Ratings
Positive Supply	+5 V / 18 mA DC	+4.9 V to +5.4 V / ≤ 22 mA 30 mV <sub>pp</sub> Ripple
Negative Supply	-5 V / 8 mA DC	-5.4 V to -4.9 V / ≤ 12 mA 30 mV <sub>pp</sub> Ripple
HV Supply	-168 V / ≈ 95 μA, DC	-173 V to -163 V / ≈ 110 μA 30 mV <sub>pp</sub> Ripple
Ramp Threshold (positive)	+0.975 V	+0.95 V to +1 V
Ramp Threshold (negative)	-0.975 V	-1 V to -0.95 V
Preamp Gain	5 mV / keV	±20 %
TEC Supply (H7 - H50)	1.58 V / 157 mA @ -35 °C	600 mA / 5.5 V
TEC Supply (H80 - H150)	3.2 V / 320 mA @ -45 °C	1000 mA / 9.2 V
TEC ΔT	85 K	@ 20 °C heat sink temperature
Temperature Sensor	10 kΩ Thermistor @ 25 °C	≤ 1 μA current

### VIAMP 3.0 PIN ASSIGNMENT\*

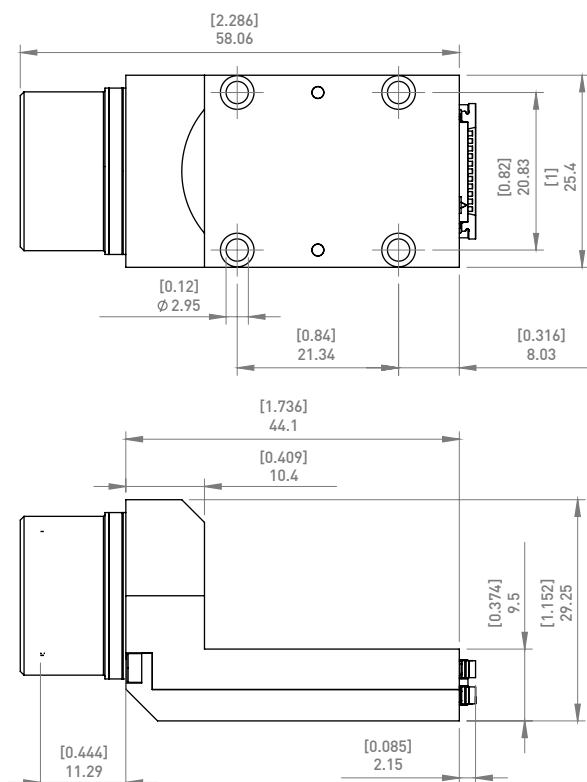
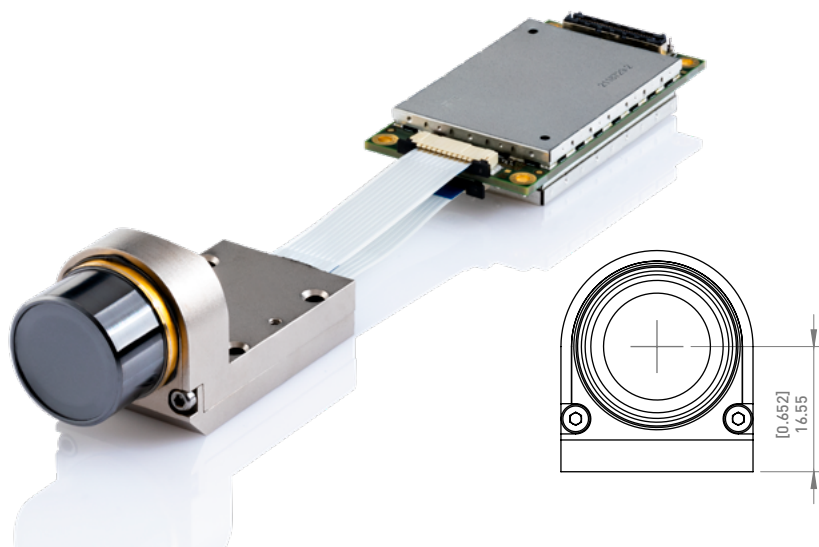
#Pin	Typical
Pin 1	TEC Return
Pin 2	TEC Supply
Pin 3	Positive Supply
Pin 4	Negative Supply
Pin 5	GND (Signal Return)
Pin 6	Signal Out
Pin 7	Temperature Sensor
Pin 8	GND
Pin 9	n.c.
Pin 10	HV Supply

\*8-Pin FFC for VIAMP communication  
with VICO-DV 3.0 supply electronics

## VIAMP KL 3.0

### FOR SDDS WITH LARGE ACTIVE AREA

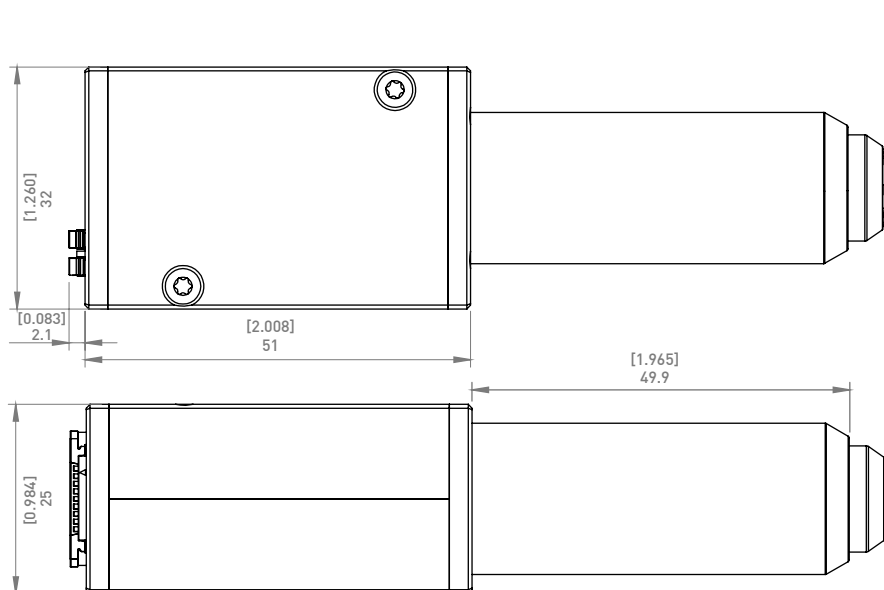
- For VITUS H80 & H150
- Electrical interface fully compatible to the VIAMP-KC 3.0
- Mates perfectly to the VICO-DV 3.0 supply electronics including KETEK DPP3



## VIAMP KP 3.0

### FOR VACUUM APPLICATIONS LIKE BENCHTOP SEMS

- Compact form factor
- 50 mm stainless steel finger
- For VITUS H7 to H50


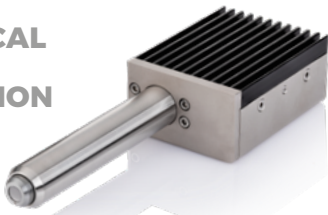



# VITUS SDD OPTIONS


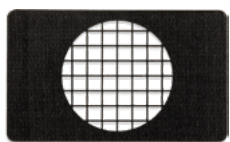


H7 CH/CL	H20 CH/CL	H30 CH/CL	H50 / K50 CH/CL	H80 / H150
<b>H7 CH</b> V000-KTN0-H007-MA2C	<b>H20 CH</b> V000-KTN0-H020-MA2C	<b>H30 CH</b> V000-KTN0-H030-MA2C	<b>H50 CH</b> V000-KTN0-H050-MA6C	<b>H80</b> V000-KAT0-H080-ML4A
	<b>H20 SLF</b> V000-KTN0-H020-MEJC		<b>K50 CH</b> V000-KTN0-K050-MA6C	
<b>H7 CL</b> V000-KTN0-H007-MA2G	<b>H20 CL</b> V000-KTN0-H020-MA2G	<b>H30 CL</b> V000-KTN0-H030-MA2G	<b>H50 CL</b> V000-KTN0-H050-MA6G	<b>H150</b> V000-KAT0-H150-ML4A

## SDD ELECTRONICS

Product	Description
<b>VICO-DV 3.0</b> <b>COMPLETE DPP</b> <b>ELECTRONICS</b> <b>BOARD</b> 	<p>The complement of the VIAMP module is the VICO-DV 3.0, comprising KETEK's new high-performance digital pulse processor DPP3, a temperature controller and all voltage supplies for the SDD. Also an analog version without DPP3 is available.</p> <ul style="list-style-type: none"> <li>■ KETEK's new DPP3 with peaking times down to 25 ns</li> <li>■ Extremely small dimensions 60 × 32 × 11 mm<sup>3</sup></li> <li>■ Ethernet, USB and SPI interfaces</li> <li>■ Comprehensive programming library (VICOLib), acquisition software (VICOScope) and update tool (VICOUpdate) available for Windows and Linux</li> </ul>
<b>AXAS 3.0</b> <b>ANALYTICAL</b> <b>X-RAY</b> <b>ACQUISITION</b> <b>SYSTEM</b> 	<p>The AXAS 3.0 is KETEK's new all-in-one system for VITUS SDDs in an ultra-compact housing equipped with the latest generation 3.0 preamplifier technology. It is available with all VITUS SDDs from H7 to H50 and different lengths of the vacuum tight finger.</p> <ul style="list-style-type: none"> <li>■ Very small &amp; complete XRF system: 81 × 61 × 36 mm<sup>3</sup></li> <li>■ KETEK's new high-performance digital pulse processor DPP3 with peaking times down to 25 ns</li> <li>■ Ethernet and USB Type-C interface</li> <li>■ Mapping Mode for scanning applications</li> <li>■ Acquisition software (VICOScope) and update tool (VICOUpdate) available for Windows and Linux</li> </ul>
<b>VICOSCOPE</b> <b>SOFTWARE</b> 	<p>The VICOScope software for Windows and Linux helps to get easy started. It combines the possibility to change the SDD temperature, KETEK DPP3 parameters and to acquire spectra. Comprehensive hardware diagnostic information is available.</p> <ul style="list-style-type: none"> <li>■ Easy installation</li> <li>■ Configuration of KETEK DPP3 parameters</li> <li>■ Spectrum acquisition and run statistics</li> <li>■ Automated measurement series</li> <li>■ Oscilloscope mode for analysis of digitalized raw signal</li> </ul>

## ACCESSORIES

Product	Description
<b>VMLCOL</b> <b>EXTERNAL</b> <b>COLLIMATOR</b> 	<p>The clip-on mount for external multi-layer collimators suits all VITUS SDDs up to the H50. Different collimator apertures are available. The VMLCOL prevents the excitation and fluorescence of the SDD's cap material.</p> <ul style="list-style-type: none"> <li>■ No stray lines from SDD cap</li> <li>■ Improved P/B and P/T</li> <li>■ Additional protection for the VITUS entrance window</li> </ul>
<b>VCGRID</b> <b>CARBON</b> <b>PROTECTION</b> <b>GRID</b> 	<p>The pure carbon grid can be mounted within an instrument in front of the SDD in order to protect the window from mechanical impact.</p> <ul style="list-style-type: none"> <li>■ Open area &gt; 75 %</li> <li>■ Thickness &lt; 0.58 mm</li> <li>■ Withstands a static stress up to 50 N</li> <li>■ Customized grid designs available on request</li> </ul>