IMPROVED
**BIASING
STABILITY**

IDENTICAL
ELECTRICAL INTERFACE
FOR ALL
VIAMP TYPES

KETEK

OPTIMIZED
FOR OPERATION WITH
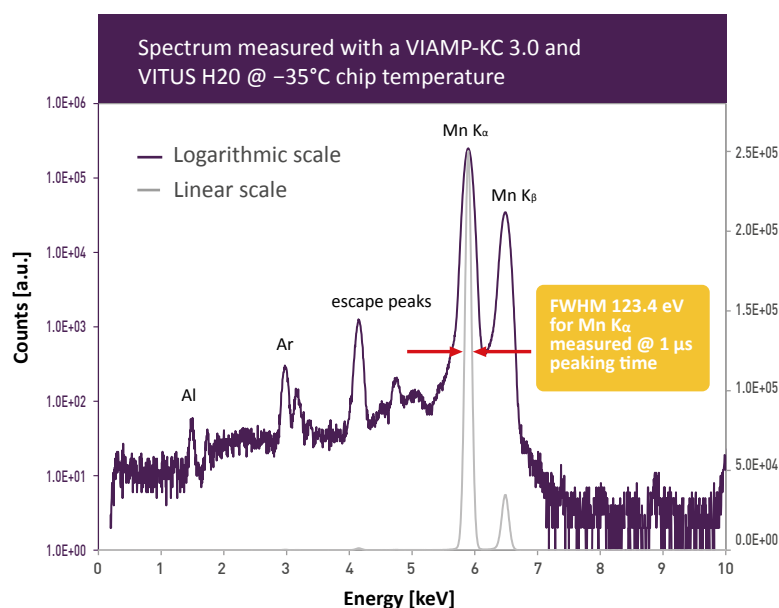VICO-DV 3.0
WITH KETEK DPP3

VIAMP

VIAMP FAMILY
PRODUCT GENERATION 3.0

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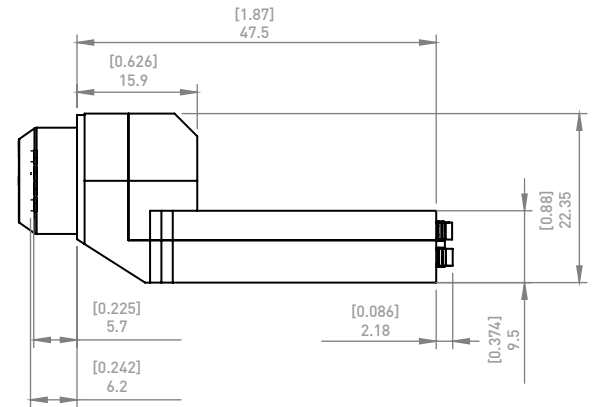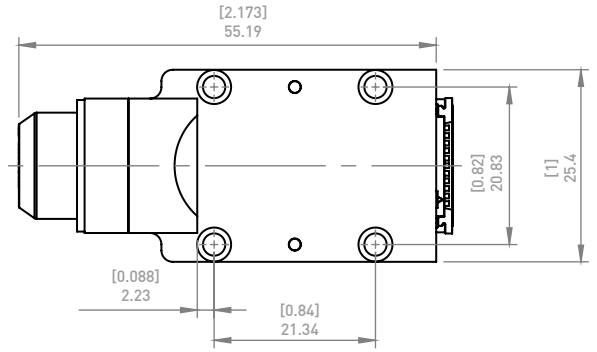
There are different Al housing options functioning as an appropriate heat sink. Beside KETEK's three standard housings, customized versions are available on request as well.

- 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_α-line: FWHM < 133eV @ 1 µs peaking time and −35°C SDD chip temperature
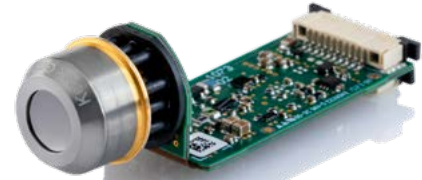- Guaranteed peak to background > 15000, typical > 20000

Spectrum measured with a VIAMP-KC 3.0 and VITUS H20 @ −35°C chip temperature

— Logarithmic scale
— Linear scale

Mn K_α
Mn K_β
escape peaks
Ar
Al

Counts [a.u.]

FWHM 123.4 eV for Mn K_α measured @ 1 µs peaking time

Energy [keV]

WITH STANDARD HOUSING
FOR VITUS H7 TO H50

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 mVpp Ripple
Negative Supply	−5 V / 8 mA AC	−5.4 V to −4.9 V / ≤ 12 mA 30 mVpp Ripple
HV Supply	−168 V / ≈ 95 µA, DC	−173 V to −163 V / ≈ 110 µA 30 mVpp 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) TEC Supply (H80 - H150)	1.58 V / 157 mA @ −35°C 3.2 V / 320 mA @ −45°C	600 mA / 5.5 V 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

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

[2.286] 58.06
[0.82] 20.83
[1] 25.4
[0.12] Ø 2.95
[0.84] 21.34
[0.316] 8.03
[1.736] 44.1
[0.409] 10.4
[0.374] 9.5
[1.152] 29.25
[0.444] 11.29
[0.085] 2.15
[0.652] 16.55
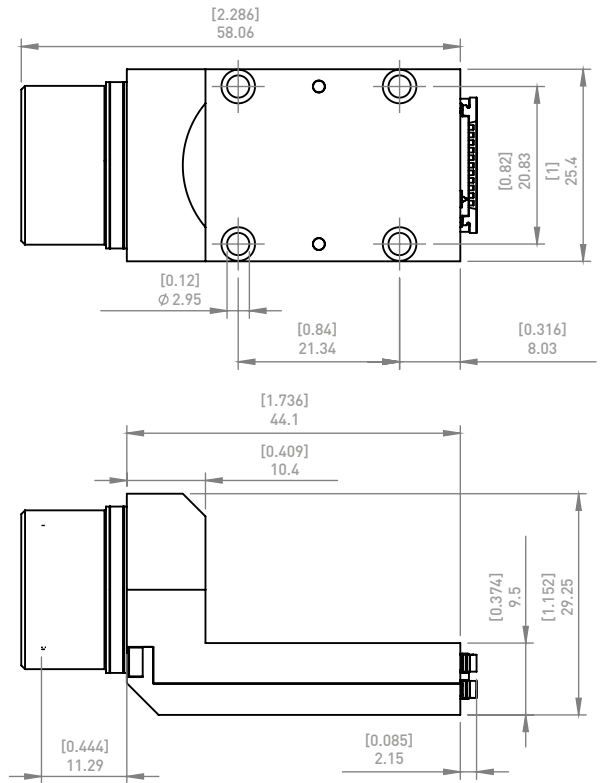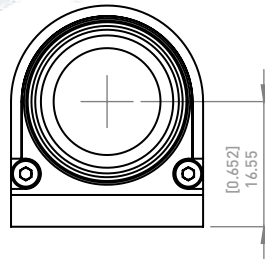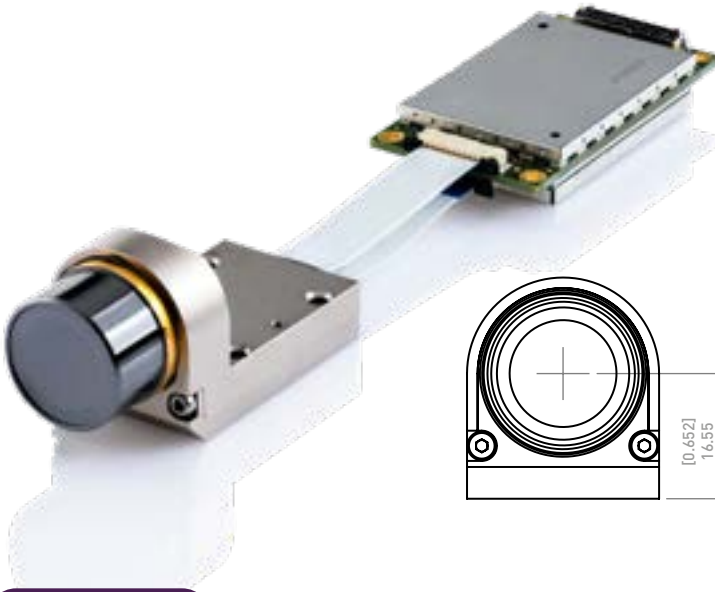
VIAMP KP 3.0

FOR VACUUM APPLICATIONS
LIKE BENCHTOP SEMS

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

[0.787] Ø 20
[1.260] 32
[0.083] 2.1
[2.008] 51
[2.145] 54.49
[0.984] 25
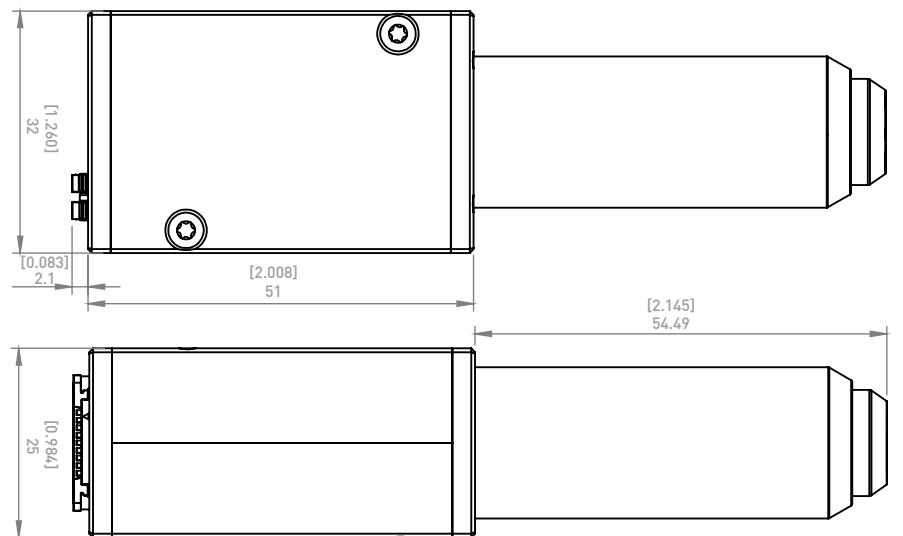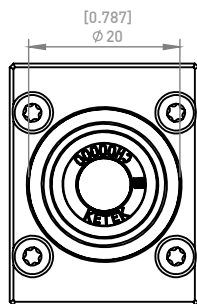
VITUS SDD OPTIONS

H7 / H7LE		H20 / H20LE		H30 / H30LE		H / K50 / H50LE		H80 / H150	
H7	V000-KTN0-H007-MA2C	**H20**	V000-KTN0-H020-MA2C	**H30**	V000-KTN0-H030-MA2C	**H50**	V000-KTN0-H050-MA2C	**H80**	V000-KAT0-H080-ML4A
						K50	V000-KTN0-K050-MA2C		
H7LE	V000-KTN0-H007-MA2G	**H20LE**	V000-KTN0-H020-MA2G	**H30LE**	V000-KTN0-H030-MA2G	**H50LE**	V000-KTN0-H050-MA6G	**H150**	V000-KAT0-H150-ML4A

SDD ELECTRONICS

Product	Description	
VICO-DV 3.0 COMPLETE DPP ELECTRONICS BOARD	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.	■ KETEK's new DPP3 with peaking time down to 25 ns ■ Extremely small dimensions 60 × 32 × 11 mm³ ■ Ethernet, USB and SPI interfaces ■ Comprehensive programming library (VICOLib), acquisition software (VICOScope) and update tool (VICOUpdate) available vor Windows and Linux
AXAS 3.0 ANALYTICAL X-RAY ACQUISITION SYSTEM	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 preamp technology. It is available with all VITUS SDDs from H7 to H50 and different lengths of the vacuum tight finger.	■ Very small & complete XRF system: 81 × 61 × 36 mm³ ■ KETEK's new high-performance digital pulse processor DPP3 with peaking time down to 25 ns ■ Ethernet and USB type C interface ■ Mapping Mode for scanning applications ■ Acquisition software (VICOScope) and update tool (VICOUpdate) available for Windows and Linux
VICOSCOPE SOFTWARE **VICO SCOPE** by KETEK	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.	■ Easy installation ■ Configuration of KETEK DPP3 parameters ■ Spectrum acquisition and run statistics ■ Automated measurement series ■ Oscilloscope mode for analysis of digitalized raw signal

ACCESSORIES

Product	Description	
EMLCOL EXTERNAL COLLIMATOR	The clip-on mount for external multilayer collimators suits all VITUS SDDs up to H50. Different collimator apertures are available. The EMLCOL prevents the excitation and fluorescence of the SDD's cap material.	■ No stray lines from SDD cap ■ Improved P/B and P/T ■ Additional protection for the VITUS entrance window
ECGRID CARBON PROTECTION GRID	The pure carbon grid can be mounted within an instrument in front of the SDD in order to protect the window from mechanical impact.	■ Open area > 75 % ■ Thickness < 0.58 mm ■ Withstands a static stress up to 50 N ■ Customized grid designs available on request