

# 100 MHz Voltage to Frequency Converter

## Technical Datasheet

The design of this unit by the ESRF is a major leap forward for V2F design, it has led to two orders of magnitude improvement in resolution as well as bringing welcome updates to usability and compatibility.



### KEY benefits

- 100X the accuracy of other V2F systems
- Low noise
- Easy configuration

The system is a two channel unit, with standard BNC inputs and LEMO outputs. The configuration of frequency output range (10, 25, 50, 100 MHz), polarity, frequency offset (0 or 12MHz) and input voltage range (1, 2.5, 5, 10V) are altered with a simple push button interface on the front panel. This configuration is displayed using LEDs and stored through power cycles with non-volatile memory.

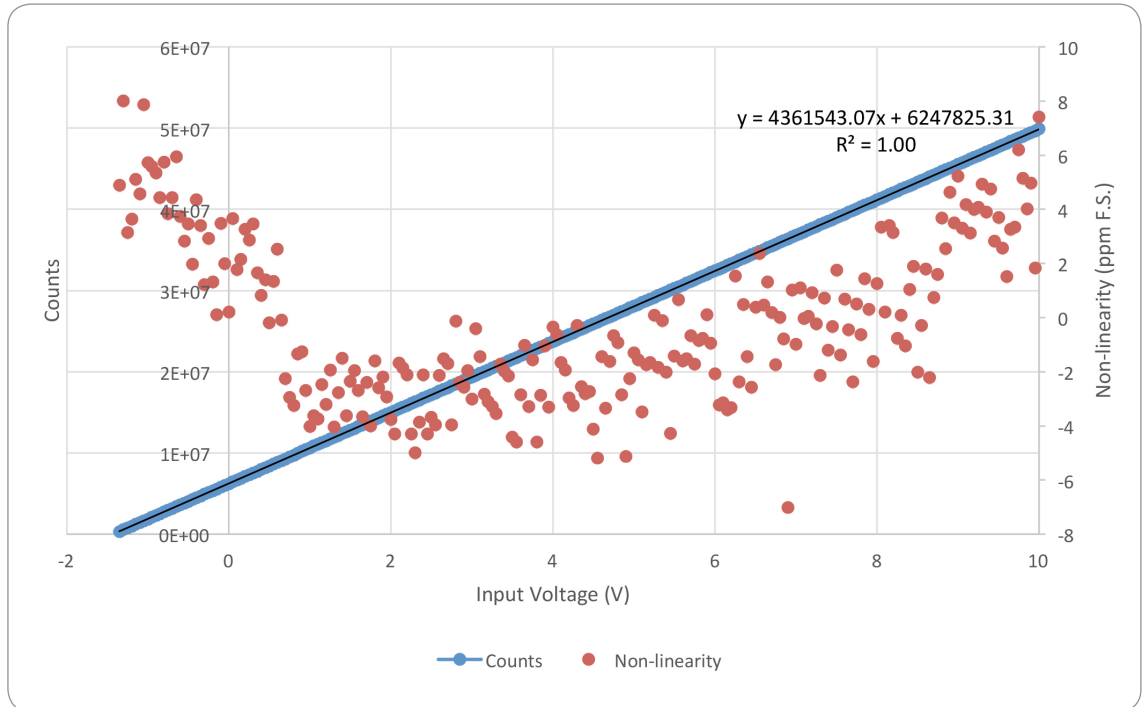
In addition to the standard LEMO outputs, a 2-phase quadrature output and absolute digital SSI output are available on the rear through a sub-D 15 connector.

Features	
<b>V2f Output Frequency</b>	10, 20, 50 or 100 MHz TTL
<b>Input Voltage</b>	0 → 10V or 0 → -10V 0 → 5V or 0 → -5V 0 → 2.5V or 0 → -2.5V 0 → 1 V or 0 → -1 V
<b>Input Configuration</b>	Isolated BNC
<b>TTL output frequency offset</b>	0 or 12 MHz
<b>Linearity Error</b>	5ppm
<b>Outputs</b>	Front: LEMO 00, 5V TTL @ 50Ω Rear: differential with RS422 electrical levels: 12MHz, 2-phase quadrature SSI, 24 bits, clock up to 10 MHz
<b>Noise</b>	1-10 μV / channel
<b>Format</b>	Stand alone unit (100 - 220V IEC/EN 60320-1 input)
<b>Power Consumption</b>	5W
<b>Dimensions</b>	55 x 105 x 109 mm, 0.4 Kg

# V2F100

## Performance

The following is an example of one of the calibration plots that is sent with each unit. The chart shows both the linearity (in blue) and the deviation from linearity (in red).



Data taken at the ESRF by the Electronics Support Laboratory.

## Availability

The V2F100s are popular at synchrotrons around the globe, with over 40 units now at the ESRF, Spring-8, Photon Factory, Diamond and elsewhere. The units are produced in batches and kept in stock at Quantum Detectors. To ensure we have sufficient stock to allocate to your order, please let us know as soon as you can about your requirement.



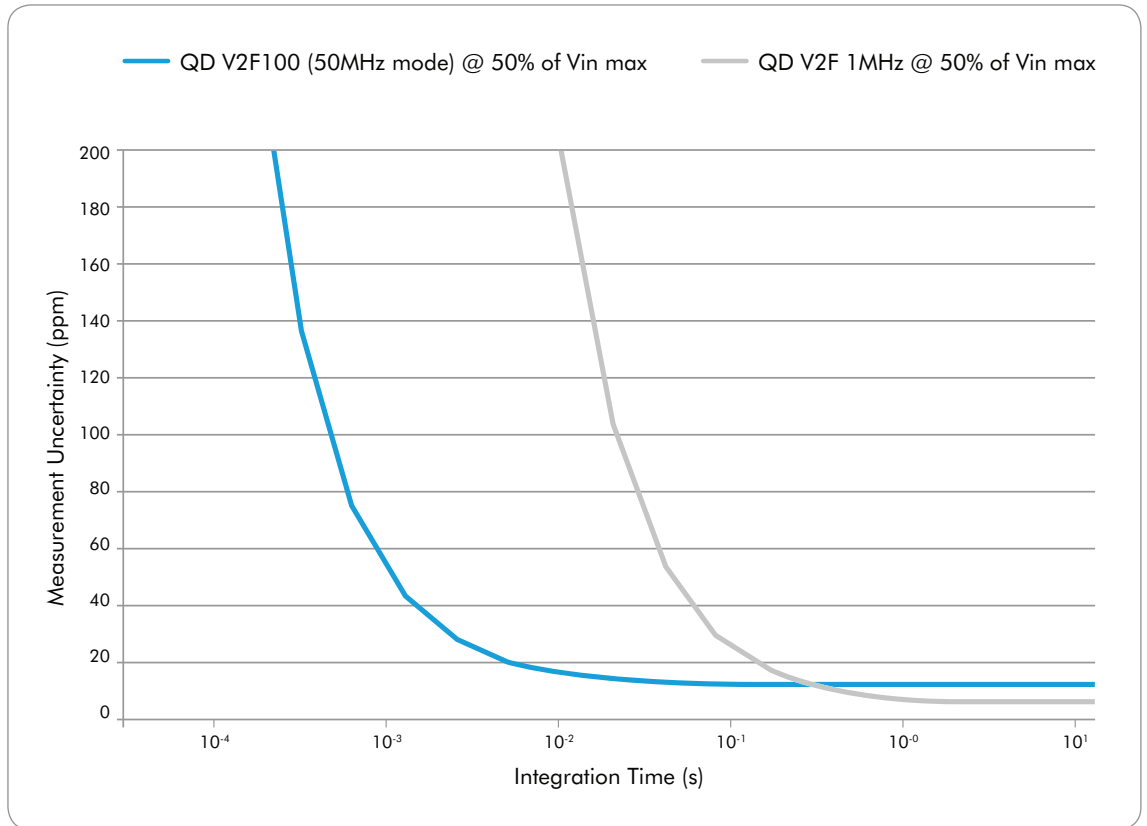
## User Customisable

The V2F100 is easy to configure using the CONFIG buttons on the front panel.

- To start configuration press CONFIG for 2s
- To change the setting, tap CONFIG
- To move to the next box, hold CONFIG for 1s
- To close configuration mode hold CONFIG for 2s

# V2F100

## Comparison of Measurement Uncertainty against Integration Time for Quantum Detectors V2F and V2F100



Analysis by Senior Detector Engineer at Diamond Light Source.