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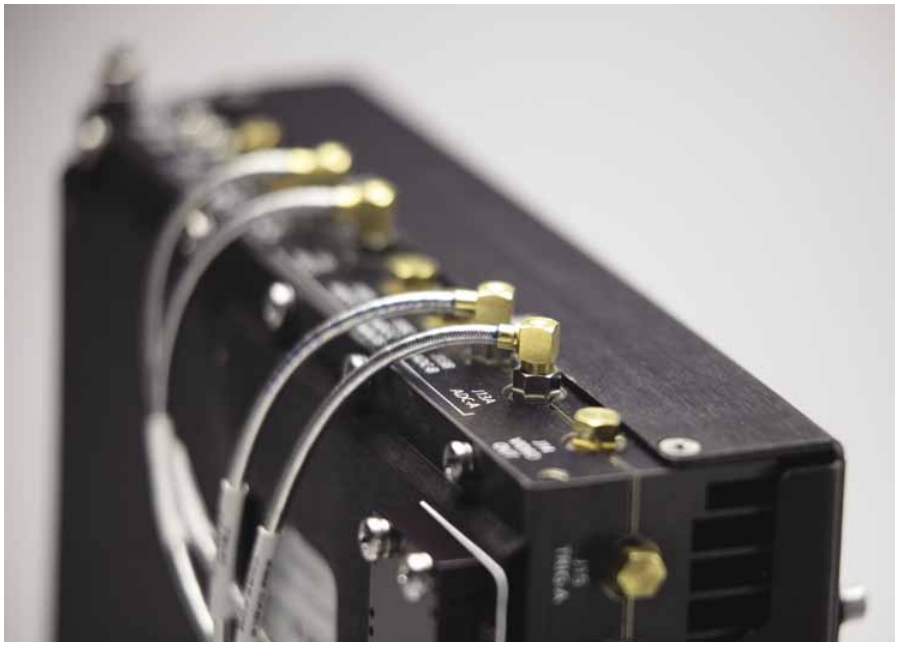
Vaisala Sigmet Digital Receiver and Signal Processor RVP900™



Vaisala Sigmet Digital Receiver and Signal Processor RVP900™

Benefits

- The RVP900™ provides comprehensive digital IF and signal processing functions on an open Linux PC platform
- 100 MHz, 16-bit IF sampling improving sensitivity and dynamic range in 5 independent channels
- 38.4 Billion multiply accumulates cycles per second which is a x5 increase over the RVP8™
- Ethernet interface allowing the RVP900™ to be PC independent. The next generation hardware is the next faster PC chip.
- Independent and parallel FIR filtering allowing dual pulse width and dual frequency strategies on each receive channel
- Dual Polarization, Wide Dynamic Range, and Pulse Compression ready.

Experience and Innovation

The people who brought you the "Gold Standard" in Weather Radar Signal Processing now bring you the RVP900™. The highly successful RVP8™ with over 400 units delivered, has been improved.

It's All in One Box

The RVP900™ consolidates all of the RVP8™ hardware and functions into a single package. The IF Digital Receiver (IFDR) provides I/Q samples directly to a PC Linux server over a CAT5 E Ethernet link. No longer are users limited to computer servers with multiple PCI slots. This reduces the cost and increases the server options available for use with the RVP900™.

Also, by eliminating four components, the RVP900™ improves reliability of the system and reducing the cost of spares and maintenance. It does all this in approximately the same mechanical footprint of the RVP8™ IFD. In addition, the RVP900™ has substantially improved capabilities for dynamic range, sensitivity, and sampling rate.

Performance – Our Fastest Processor Ever

The RVP900™ can perform 38.4 billion multiply-accumulate cycles per second and the flexibility in choosing computer servers allows us to select the fastest processors and motherboards on the market. The overall computational power is 5X faster than the RVP8™.

This allows the use of multiple, advanced processing algorithms simultaneously which improves your data.

28 Years of Quality Products and Support

You can integrate the RVP900™ into your own software or you may choose to purchase the IRIS software for Linux workstations. For a radar upgrade or a new installation, when you specify the RVP900™, you can be assured that you have specified the new industry standard.

Technical Data

IF Digital Receiver

FIVE IF INPUTS	
IF Range	5-120 MHz
Saturation Level	+8.0 dBm @ 50Ω
Dynamic Range (dependant on matched filter)	90 to >105 dB
Optional single and dual polarization wide dynamic range	>120 dB
A/D Resolution	16 bits
Sampling Rate	50 - 100 MHz
Master Clock jitter	<1.0 picosec
Multiply/accumulate cycles per second (5X greater than RVP8/IFD)	38.4 billion Hz
Pulse Repetition Frequency	50 Hz to 20 KHz
Impulse Response	3024 FIR taps (Up to 80 microseconds)
Minimum Range Resolution	15 meters (accuracy of ±1.5 m)
Maximum Range	1024 km
Maximum number of range bins	4200
PHASE STABILITY	
Klystron:	Better than 0.1 degrees
Magnetron (for 1.0 microsecond pulse):	Better than 0.5 degrees
IF WAVEFORM GENERATOR	
Two 16-bit TxDAC outputs	5-65 MHz, >65 dB SNR, +13dBm @ 50Ω
TxDDS output	5-105 MHz, >65 dB SNR, +13dBm @ 50Ω
MISCELLANEOUS I/O	
RS-422	20 Differential Line Pairs
TTL/CMOS Lines	20 open-ended lines
Analog input	6 differential pairs ±10V

Signal Processor

Processing Modes	PPP, FFT/DFT, Random Phase 2nd trip filtering/recovery
Data Outputs (8 and 16 bit)	Zh, Zv, Zhv, V, W, SQI, ZDR, LDR, RHOHV, PHIDP, and KDP
Optional Data Outputs	HCLASS, I/Q
Dual Polarization	Alternating, Simultaneous, H-Only, V-Only
High Sensitivity Rhv STAR mode Processing	>3dB improvement in detectability
Azimuth Averaging	2 to 1024 Pulses
Dual PRF Velocity De-aliasing	2:3, 3:4, or 4:5 for 2X, 3X, or 4X de-aliasing
Clutter Filters	IIR, Fixed and Adaptive Width GMAP >55 dB rejection

Physical and Environmental

INPUT POWER	
Digital Receiver:	85-264 VAC 50/60 Hz or 12-36 VDC
Signal Processor:	100 - 240V, 50 - 60Hz
ENVIRONMENTAL	
Digital Receiver: (non-condensing) R.H.	-40 °C - 50 °C operating, 0 - 95%
Signal Processor: (non-condensing) R.H.	10 °C - 35 °C operating, 8 - 90%
RELIABILITY	
Digital Receiver:	>50,000 Hours MTBF (at 25 °C), < 1 hour MTTR

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For more information, visit www.vaisala.com or contact us at sales@vaisala.com

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