



## IQ2 RECEIVER SIGNAL PROCESSOR

The most innovative integrated receiver/signal processor configuration on the market.



**The IQ2-RSP** employs cutting edge hardware and software technology to achieve the highest weather radar data resolution and system control accuracy.



**PROTECTING PEOPLE AND ASSETS®**

[eecweathertech.com](http://eecweathertech.com)

## IQ2-RSP ADVANTAGES

- Digital Automatic Frequency Control (DAFC), IFD supported – No AFC required on Magnetron systems
- All digital IF and signal processing functions hosted on open Linux PC hardware
- 16-bit digital sampling
- Up to 8000 Range Bins - highest resolution in the industry
- High speed serial angle tag bits (Parallel tag bits are optional) – No complex wiring
- Fiber optic interfaces provide real-time I&Q data recording (10 GB/sec)
- Open API allows for customer developed signal processing algorithms.
- Wide-band waveform generation and receiving - Enhance radar flexibility

The IFD supports Digital Automatic Frequency Control (DAFC). The frequency of the IF is no longer controlled by adjusting the STALO frequency, the input frequency of the 4-data channels is now adjusted to match the IF frequency while supporting traditional AFC control.

## IQ2 - INTERMEDIATE FREQUENCY DIGITIZER

- Digitizer is encased in a machined aluminum housing - mechanically robust and stable
- Provides high inter-channel isolation and external EMI isolation
- Four signal channel A/D converters with 16-bit sampling up to 100MHZ
- Maximum number of range bins = 8000
- Minimum Range Resolution = 15 meters
- Two Dual-TX channels with independent 16 bit D/A WGs - waveform/TX flexibility
- Dynamic range  $\geq 110$  dB ( $\pm 1.0$ dB)
- Receiver bandwidth = 0.5-5 MHz (at IQ2-IF input)
- WG bandwidth = 0.1-10 MHz (at IQ2-IF output)
- RoHS compliant
- IIR clutter filter
- DFT clutter filtering
- DFT processing
- Pulse Repetition Frequency = 10 Hz - 24 KHz
- Number of Pulse widths - 4 with independent configurable matched filters (up to 1280 taps)
- Dual PRF Stagger Modes - None, 2/3, 3/4, and 4/5

## IQ2 - DIGITAL SIGNAL PROCESSOR

### Minimum Computer Specifications

**Processor:** intel Xeon quad-core 5520 or superior

**Memory:** 8GB DD3

**Disk:** 160GB minimum

**Two Gigabit Ethernet ports**

**Operating System:** Linux

### OUTPUT DATA

#### Simultaneous Horizontal / Vertical Transmit

<b>Corrected reflectivity H/V</b>	Zh, Zv [dBZ]
<b>Uncorrected reflectivity H/V</b>	UZh, UZv [dBZ]
<b>Radial Velocity H/V</b>	Vh, Vv [m/s]
<b>Spectral width H/V</b>	Wh, Wv [m/s]
<b>Cross correlation coefficient</b>	RHOHV
<b>Differential phase</b>	PHIDP [°]
<b>Differential reflectivity</b>	ZDR [dB]
<b>Clutter power H/V</b>	CCORh, CCORv [dB]
<b>Signal quality index H/V</b>	SQlh, SQlv
<b>Signal Noise Ratio</b>	SNRh, SNRv [dB]
<b>Inphase / Quadrature signal H/V</b>	Ih, Iv, Qh, Qv
<b>Power spectrum H/V</b>	

#### Horizontal Transmit

<b>Corrected reflectivity</b>	Zh [dBZ]
<b>Uncorrected reflectivity</b>	UZh [dBZ]
<b>Radial Velocity</b>	Vh [m/s]
<b>Spectral width</b>	Wh [m/s]
<b>Depolarization Ratio</b>	LDR [dB]
<b>Signal Noise Ratio</b>	SNRh [dB]
<b>Signal quality index H</b>	SQlh
<b>Clutter power H</b>	CCORh

#### Vertical Transmit

<b>Corrected reflectivity</b>	Zv [dBZ]
<b>Uncorrected reflectivity</b>	UZv [dBZ]
<b>Radial Velocity</b>	Vv [m/s]
<b>Spectral width</b>	Wv [m/s]
<b>Depolarization Ratio</b>	LDR [dB]
<b>Signal Noise Ratio</b>	SNRv [dB]
<b>Signal quality index V</b>	SQlv
<b>Clutter power V</b>	CCORv



**PROTECTING PEOPLE AND ASSETS®**

**Enterprise Electronics Corporation**

128 S. Industrial Blvd., Enterprise, AL 36330, USA

p: +1 334.347.3478 | f: +1 334.393.4556

sales@eecweathertech.com

EEC is an ISO 9001: 2008 company.

This publication is issued to provide limited information regarding the product or model number specified and is supplied without liability for errors or omissions. We reserve the right to modify OR revise all or part of this document without notice. For detailed information regarding the radar model mentioned in this publication, write or e-mail EEC at the address provided.

SIDPOL™ Radar is patented technology, covered by U.S. Patent No. 6,859,163 B2, U.S. Patent No. 7,049,997, U.S. Patent No. 7,439,899, U.S. Patent No. 7,551,123, U.S. Patent No. 7,683,828, U.S. Patent No. 7,750,573, U.S. Patent No. 7,760,129, U.S. Patent No. 7,880,665, U.S. Patent No. 7,450,693, U.S. Patent No. 7,369,082, 13041 (OAPI Region), 009250 (Eurasia) and 009249 (Eurasia).

© 2016, Enterprise Electronics Corporation (EEC)