Compact X-band Dual Polarimetric Doppler Weather Radar

Model WR2120

Dual polarimetry for High performance!
Dual Polarization

High Precision Rain Observation & Accurate Measurements

Single Polarization

Dual Polarization

Standard measurement

Compensates

Rain intensity loss

The Dual Polarization of the WR2120 recovers signal intensity loss and attenuation caused by heavy rain, see above example.

Particles Classification

Hail

Rain

Snow

○ Particle Uniformity Assessment
○ Aspect Ratio Measurement

Several data such as echo strength or phase difference, provided by the WR2120, can be utilized to assess the nature of the detected particle and deduct whether it is Snow, Hail or Rain.

Various software applications available

Visualization Application
(Paid service)

○ Easy monitoring with our standard WR2120 visualization software

Various data format compatibilities

○ Various data formats used in major software packages, such as Baron Lynx and Vaisala IRIS Focus, are available

Easy Installation

○ Very Compact and lightweight (1 m, 65 kg)
○ No heavy equipment required for installation
○ Compatible with regular power outlet

Reduced Operating Costs

Solid-State

○ Reliable, less maintenance, long life solid-state transmission device
○ Lower power consumption

Radar status monitoring for optimized performance

Carbon Fiber Antenna Dish

○ Reduction of the antenna weight
○ Reduction of damage and mechanical stress due to shocks and vibrations
For Various Situations

Several different locations

Cities
Local weather observation capabilities for optimal wastewater treatment efficiency, increased public safety and minimizing property loss through enhanced flood damage prevention control.

Airports
Observation and identification of approaching rainfall/snowfall around airports for improved traffic management and safety.

Mountains
Observation of rainfalls and their effect in mountainous areas allowing easier prediction of water flows for disaster prevention.

Safe relocation, easy transportation

Wide range of transportation choices
Pickup, Trailer, Small trucks...

Heading sensor for azimuth adjustment*

Vibration isolator for safe relocation and transport*
MIL-STD-810G Test Method 514.7 ANNEX C Category 4 Secured Cargo, Common carrier (US highway truck vibration exposure) Test1

WR2120 case for easy transportation*
WR2120 on a trailer (example)
*Option

Large Radars (S/C-Band) supplement

The WR2120 can supplement, reinforce and fill-in areas conventional S/C-Band Radars cannot reach.

*Example diagram of an efficient combination using WR2120 X-Band Radar to detect local weather changes with high precision in lower elevation areas while large S/C band radars sweep higher elevations for longer range observation.

Multi-Radar Configuration

Multi-radar configuration for higher precision and reduced blind areas

- High precision measurements
- Reduced blind areas

Multi-radar configuration for increased observation range

Signal power attenuation due to heavy rain
(Blind areas can be covered by other WR2120 radars)
Specifications

<table>
<thead>
<tr>
<th>Model Name</th>
<th>WR2120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna Polarization</td>
<td>Dual Polarimetric (Horizontal and Vertical) Transmit/Receive</td>
</tr>
<tr>
<td>Operating Frequency</td>
<td>9.4 GHz band</td>
</tr>
<tr>
<td>Pulse Width</td>
<td>0.5-50 us</td>
</tr>
<tr>
<td>Pulse Repetition Frequency (PRF)</td>
<td>2000 Hz max.</td>
</tr>
<tr>
<td>Beam Width</td>
<td>2.7° (both horizontal and vertical beams)</td>
</tr>
<tr>
<td>Peak Output Power</td>
<td>100 W (both horizontal and vertical beams)</td>
</tr>
<tr>
<td>Vertical Scan Angle</td>
<td>-2 to 182 degrees (adjustable)</td>
</tr>
<tr>
<td>Antenna Rotation Speed</td>
<td>0.5-10 rpm max. (adjustable)</td>
</tr>
<tr>
<td>Observation Range</td>
<td>70 km max.</td>
</tr>
<tr>
<td>Scan Modes</td>
<td>PPI, Volume Scan, Sector PPI, Sector RHI</td>
</tr>
<tr>
<td>Output Parameters</td>
<td>Reflectivity factor Zh (dBZ), Doppler velocity V (m/s), Doppler velocity width W (m/s), Cross polarization difference phase edp (deg), Specific differential phase KDP (deg/km), Correlation coefficient between two polarizations, Horizontal and Vertical Differential reflectivity ZDR (dB), Rainfall intensity R (mm/h)</td>
</tr>
<tr>
<td>Doppler Speed</td>
<td>+/-64 m/s</td>
</tr>
<tr>
<td>Available Data Formats</td>
<td>CF/Radial, Opera Odim HDF5, CF-compliant NetCDF (rain only) Grib2 (rain only)</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-10°C to +50°C</td>
</tr>
<tr>
<td>Maximum Wind Survival Speed</td>
<td>90 m/s</td>
</tr>
<tr>
<td>Power Supply</td>
<td>100-240 VAC, Single Phase, 50/60 Hz</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>650 W max., 470 W typ.</td>
</tr>
<tr>
<td>Sensitivity-reflectivity</td>
<td>Typ. 25 dBZ@50 km @Q0N 50us 2 MHz (SNR = 4 dB)</td>
</tr>
<tr>
<td>Gain</td>
<td>&gt;= 33.0 dBi</td>
</tr>
<tr>
<td>Transmitter Type</td>
<td>Solid state</td>
</tr>
<tr>
<td>Occupied Frequency Bandwidth</td>
<td>&lt;= 6 MHz</td>
</tr>
</tbody>
</table>

System Configuration

**Standard configuration**

- Antenna unit WR2120-ATU
- Signal Processing Unit WR2120-SPU
- Data Processing Unit WR2120-DPU
- Monitor

**Multi-radar configuration**

- Server configuration

- Server
- Internet
- Web browser (User PC, Mobile devices)

**Specifications subject to change without notice**

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