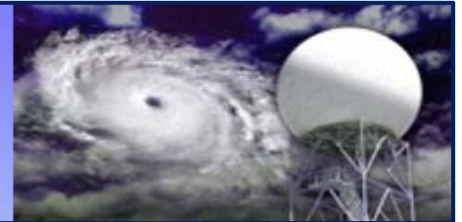


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Reliability
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Pulse Systems, Inc.

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News Press Release

Pulse Systems TR-3600 Solid-State Weather Radar System

Pulse Systems has taken advantage of the recent advancement in the solid state, Gallium Nitride high power RF transistor technology and developed after three years of intensive research a novel system P/N TR-3600 for the weather radar industry.

The first system, TR-3600 has been successfully installed in a local weather radar site operated by a TV station and the results are excellent as expected.


The Pulse Systems TR-3600 Solid-State Weather Radar Transmitter is packaged to be form-fit compatible with the Pulse Systems Magnetron Transmitter. This makes it an easy upgrade / replacement option for any radar using the PSI Magnetron C-band Transmitter. The TR-3600 accepts the same input power connection and trigger connection as the magnetron transmitter. It uses the same ethernet or discrete I/O DB-37 connection for remote control and status monitoring. The waveguide output is in the same physical position as the magnetron transmitter.

The TR-3600 SSPA accepts as input an RF pulse of 0dBm nominal power. The receiver used in a magnetron transmitter would need to be modified to add an exciter channel to generate this RF pulse. Generally, this is easily done. If the TR-3600 is used to replace a klystron based transmitter, the receiver would already be equipped with such an exciter.

There are several advantages using a solid-state radar over a conventional magnetron. Some of the main advantages are as follows:

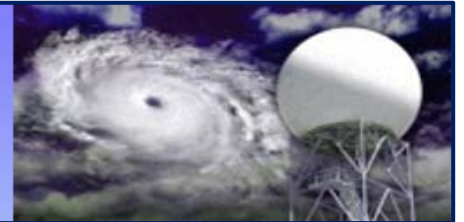
- SSPA transmitters do not require nearly as much radar maintenance. No high voltages are used in the SSPA. The maximum voltage derived in the SSPA system is 50VDC.
- Furthermore, as the output peak power is far less than a magnetron or klystron based transmitter, there is no requirement for waveguide pressurization, but a pressurizer can still be used to keep the waveguide clean and dry if desired.
- SSPA transmitters can continue to operate with reduced power output when a module failure occurs while a magnetron failure is a catastrophic one.

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- SSPA transmitters are “instant on”. There is no warmup time as is required by a magnetron or klystron.
- MTBF for an SSPA transmitter is estimated at 250,000 hours verse 3000 hours for a typical magnetron based transmitter.
- SSPA transmitters provide greater phase stability as compared to magnetron transmitters for better clutter rejection and overall better quality data.
- The pulses lengths from the SSPA transmitter are infinitely adjustable in the range up to 200 microseconds where a magnetron transmitter is usually limited to just a few pulse lengths.

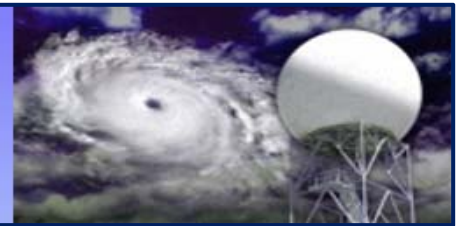
Key Specifications:

- 6kW peak output power either combined into a single output, or possibly two separate outputs of 3kW each if used in a non-power-split dual polarization configuration.
- Operating frequency tunable in the range 5400 to 5700 MHz.
- Pulse lengths up to 100 microseconds with infinite electability. Pulses longer than 6 microseconds generally require a pulse compression signal processor. Pulses up to 6 microseconds do not require pulse compression and offer sensitivity on pare with a 1 microsecond pulse from a 250kW magnetron or klystron transmitter.
- 10% Max duty cycle. Allows for 100us pulse at 1000Hz PRF.
- 230VAC input with 10amps maximum current draw. Same power connector as PSI magnetron transmitter.
- RF input pulse nominally 0dBm peak power.
- 5V into 50 ohm trigger input, same as PSI magnetron transmitter.
- Same control/status I/O connection as used in PSI magnetron transmitter.
- Touch screen PLC for local control and status monitoring.
- Form-fit compatible with PSI magnetron transmitter for 19” rack mount.
- Physical design for easy maintenance and access to all components.
- WR-187 waveguide output in same physical position as PSI magnetron transmitter if used as single polarization or split-power dual polarization. Separate WR-187 outputs available if used as non-split-power dual polarization (3kW each output).
- Forced air cooling. No oil or other liquids used in cooling or insulating.
- Internal voltages limited to 50VDC.

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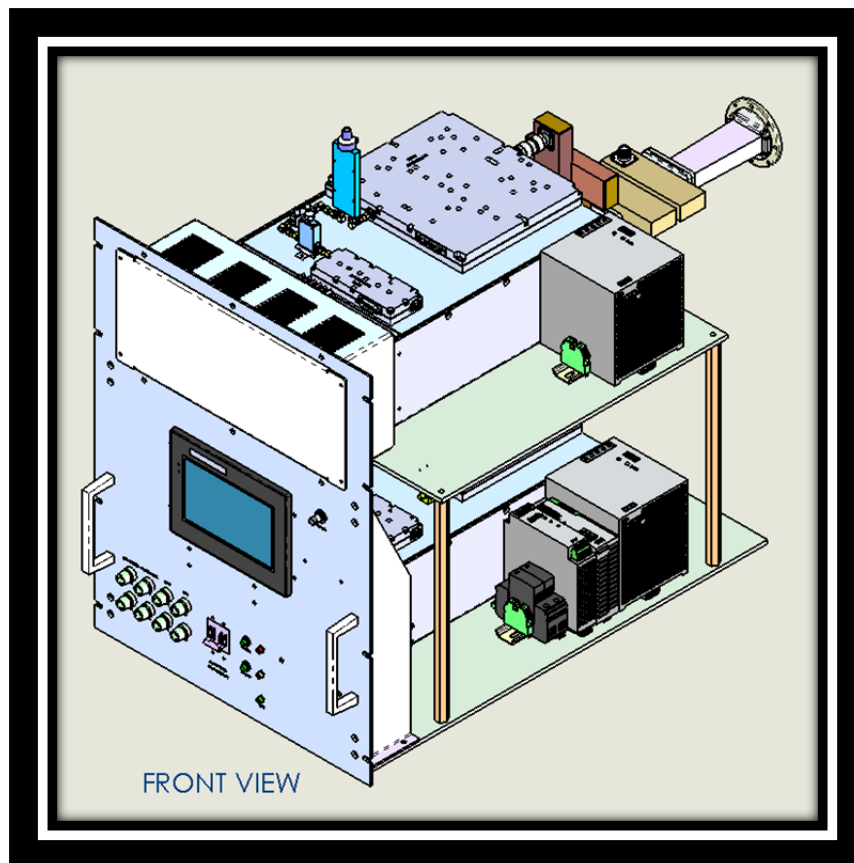
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- Graceful output power degradation in the event of failure of a SPA module.
- Control inputs (local or remote) power on/off, radiate on/off, fault reset.
- Internal fault protection for air flow, over duty, temperature, amplifier fault, VSWR fault. Any fault immediately stops the SSPA output and is latched requiring a local or remote reset to return to operation. Faults and output power can be monitored on remote interface.

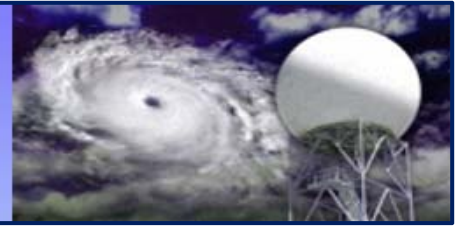
Mechanical TR-3600- Front View



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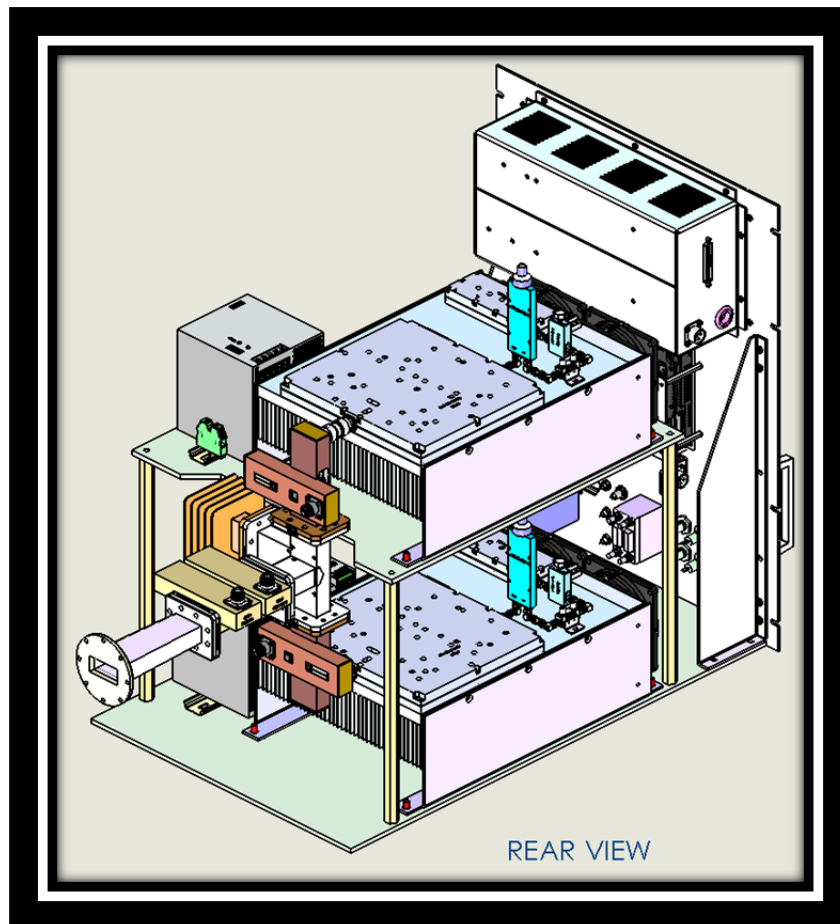


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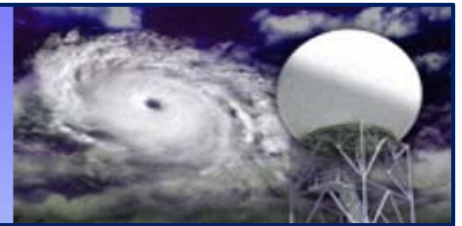
Mechanical TR-3600 Rear View



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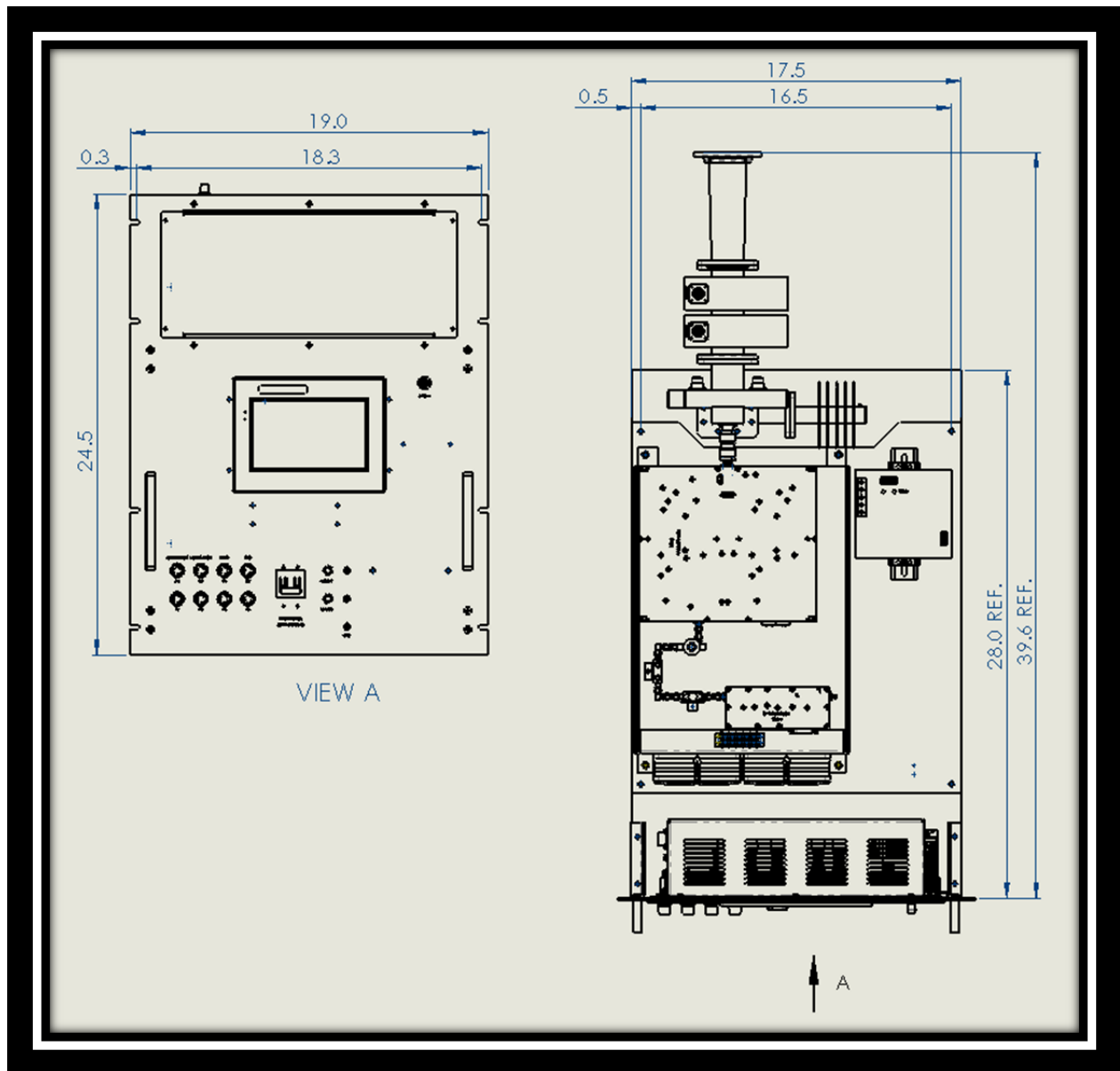


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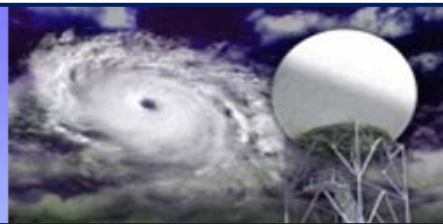
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Mechanical TR-3600



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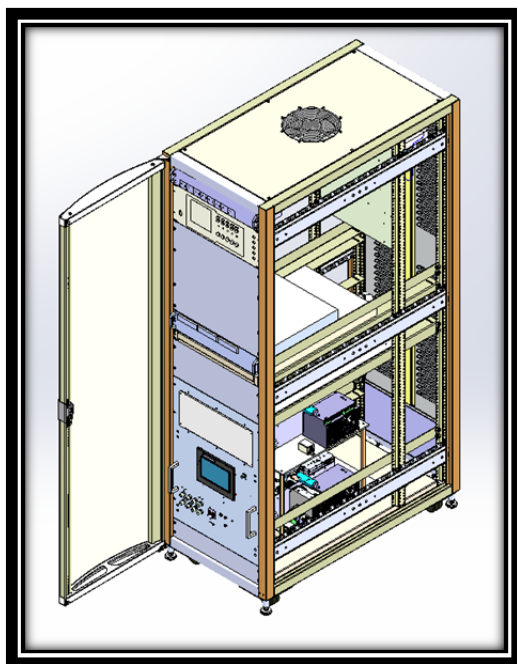


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