

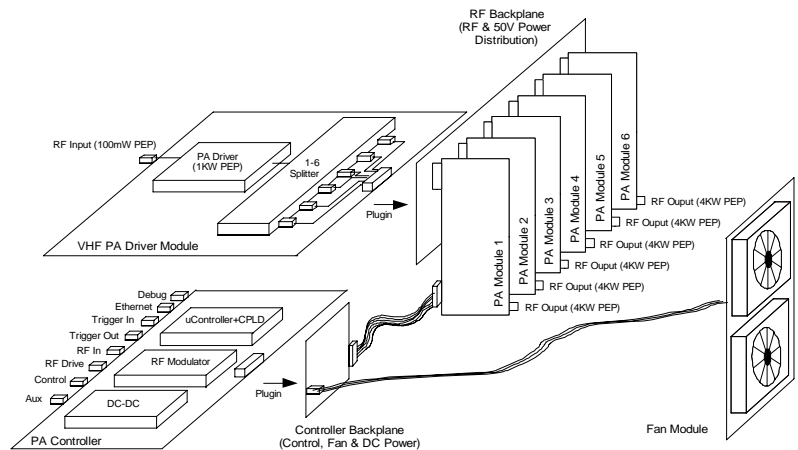
## STX-II SERIES

# ST-20 / ST-40 HIGH POWER PULSE RADAR TRANSMITTERS



## KEY FEATURES:

- ◆ 20/40kW standard configurations
- ◆ Master/Slave operation for higher power applications
- ◆ Up to 15% duty-cycle operation
- ◆ Remote Monitoring & Control
- ◆ In-built Modulator or User-Supplied Modulated RF
- ◆ Selectable Pulse Shape
- ◆ Programmable Pulse Coding
- ◆ Graceful Degradation on PA module failure
- ◆ Fully Modular Construction
- ◆ Self-protecting, High MTBF, Low MTRR



The ATRAD STX-II series is a new generation of solid-state pulse radar transmitter designed to combine the flexibility required for scientific applications with the performance and reliability demanded by 24x7 radar applications.

**MODULARITY** The STX-II is built around a 4kW Power Amplifier (PA) module. A basic 20kW amplifier block consists of six of these PA modules, an RF Driver module and a controller unit. The **ST-20** consists of one 20kW amplifier block, a Power Supply Unit (PSU) and a 6:1 High Power Combiner to provide a single 20kW output while the **ST-40** consists of two 20kW amplifier blocks, two Power Supply Units and a 12:1 High Power Combiner to provide a single 40kW output.

**GRACEFUL DEGRADATION** A GYSEL combiner topology is used to ensure that in the event that one or more PA modules fail, the transmitter remains fully functional (but operating at reduced output power) until a repair visit can be scheduled.

**PHASE & AMPLITUDE MATCHING** The PA modules are themselves closely matched in phase and amplitude—combining all PA modules outputs to a single output prior to subsequent splitting improves this still further, in addition to allowing graceful degradation.

**REDUNDANCY** Telecommunications Grade switch-mode modular Power Supplies are used, providing N+1 redundancy capability (optional).

**FLEXIBILITY** While 20kW is the standard building block, any number of modules from 1 to 6 may be used in the basic building block. Appropriate combiners for these configurations are available to order. PSU capacity will be matched to the application's total power, duty cycle and redundancy requirements.

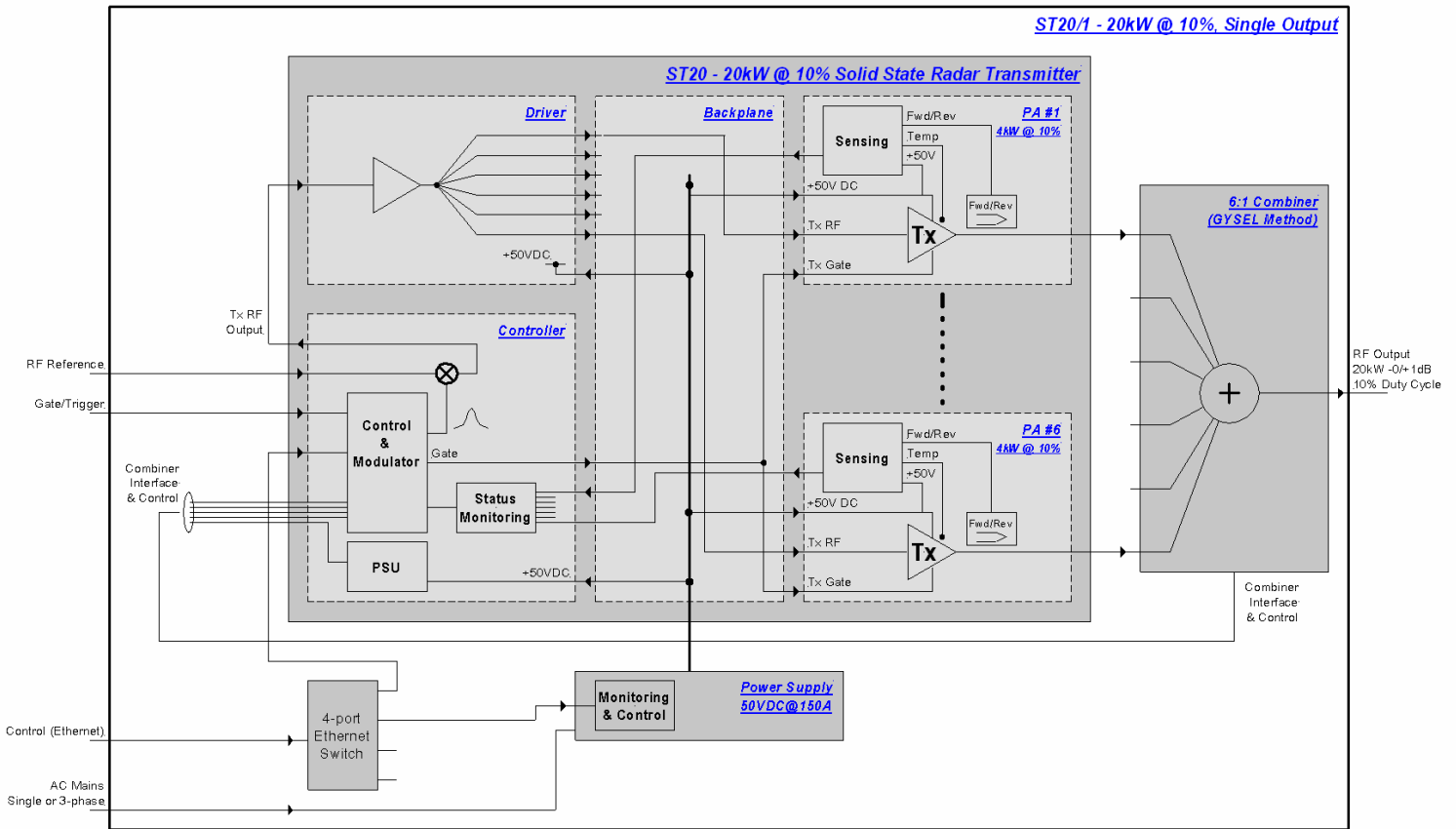
**RELIABILITY & REPAIRABILITY** Self-protecting against over-temperature, open- and short-circuit outputs, excessive VSWR and Duty Cycle and Over/Under AC Mains voltage. Where necessary, a faulty module can rapidly be replaced with minimal system downtime (typically less than 5 minutes).

**MONITORING & CONTROL** Remote parameter setting and monitoring of current temperature, voltages, forward power and return loss is standard.

**BATTERY BACKUP CAPABILITY** The Power Supply units are also designed to charge standby batteries for applications where the radar system is required to operate continuously during a power failure or until a backup generator can be brought online (optional).



*ST20/1 - 20kW @ 10%, Single Output*



SYSTEM CHARACTERISTICS	ST-20	ST-40
Transmitter Configuration	Solid-State Transmitter, Single output Force-cooled Rear to Front	
Operating Frequency Range	30-60 MHz (actual operating frequency fixed at time of manufacture)	
Peak Envelope Power	20kw -0/+1 dB (at rated duty cycle)	40 kW -0/+1 dB (at rated duty cycle)
Power Supply	110V AC, 60Hz /240V AC, 50Hz Single or 3-Phase	110V AC, 60Hz /240V AC, 50Hz 3-Phase
Power Consumption	5.5kVA (at rated duty cycle)	11kVA (at rated duty cycle)
Physical	19" Rack, 18RU, 1000mm deep	19" Rack, 39RU, 1000mm deep
VSWR (Input/Output)	1.5:1 (minimum)	
Maximum PRF	Dependent on pulse width and maximum Duty Cycle	
Pulse Shape	Gaussian, Square	
Pulse Coding	User Programmable up to 512 bit length	
Maximum Duty Cycle	10% Gaussian Monopulse 15% Square/Coded Pulse	
Output Spurious & Harmonics	Better than -60dBc	
Impedance	50Ω	
Output Level	Programmable from 0-100%	
User Inputs / Outputs	+13dB RF Input & TTL Trigger Input (BNC) RF Output (DIN 716) Monitor & Control Port (RJ45 Ethernet)	
Options / Accessories	Alternative Power Configurations (4..20kW, 60 kW, 80kW) High-Power Splitters High-Power T/R Switch	



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Specifications subject to change without notice or obligation

## FURTHER INFORMATION

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