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MODEL 5022AFE-008

1.25 - 1.35 GHz
50 WATTS
LINEAR POWER RF AMPLIFIER

Solid State High Power RF Amplifier

The 5022AFE-008 is a 50-watt narrow-band amplifier that covers the 1.25 - 1.35 GHz frequency range. This small and lightweight amplifier utilizes Class A/AB linear power devices that provide an excellent 3rd-order intercept point, high gain, and a wide dynamic range.

Due to robust engineering and employment of the most advanced devices and components, this amplifier achieves high efficiency operation with proven reliability. Like all OPHIR$_{RF}$ amplifiers, the XRF880 comes with an extended multiyear warranty.

The 5022AFE-008 is customized for customer specific status outputs, amplifier controls and various protections.

Specifications subject to change without notice.

	Parameter	Specification @ 25° C
Electrical		
1	Frequency Range	1.25 - 1.35 GHz
2	Saturated Output Power	50 Watts typical
3	Power Output @ 1dB Comp.	40 Watts min
4	Small Signal Gain	+48 dB min
5	Automatic Leveling Control (ALC)	Allows user to set a fixed output level that will remain constant regardless of RF input, amplitude, or temperature variations.
6	IP_3	+56 dBm typical
7	Input VSWR	2:1 max
8	Harmonics	-20 dBc typical @ 50 Watts
9	Spurious Signals	< -60 dBc typical @ 50 Watts
10	Input/Output Impedance	50 Ohms nominal
11	AC Input Power	600 Watts max
12	AC Input	100 – 240 VAC, single phase
13	RF Input	+10 dBm max
14	RF Input Signal Format	CW
15	Class of Operation	A/AB
16	External Interlock control*	15 Pin D-sub female connector (rear panel)
Mechanical		
17	Dimensions	19” x 5.25” x 20”
18	Weight	38 Lbs.
19	Connectors	RF: Type-N (front panel) Status Indicators/Controls: D-sub female 15 pin (rear panel)
20	Grounding	Chassis
21	Cooling	Internal Forced Air
Environmental		
22	Operating Temperature	0º C to +50º C
23	Operating Humidity	95% Non-condensing
24	Operating Altitude	Up to 10,000’ Above Sea Level
25	Shock and Vibration	Normal Truck Transport

External interlock control:

*Pin **5** is GND, Pin **1** is the control line:
If Pin 1 = open, RF is in the standby condition
If Pin 1 = ground (closed to Pin 5), RF is enabled

D-sub, 9 pin-out:

Pin 1: Interlock control line
Pin 2: RF ready
Pin 3: RF standby
Pin 4: RF fault
Pin 5, 11: Ground
Pin 6: RF output forward power
Pin 7: RF output reverse power
Pin 8: Over temperature
Pin 9: Amplifier online/standby mode (input)
Pin 10: Input RF relay (input)
Pin 12: RF fault reset (input)
Pin 13—Pin 15, no connection

03/07/13 Approved By: _____ Date: _____

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Front Panel Controller Features

◊ Forward power monitoring
◊ Reflected power monitoring
◊ Gain control (Dynamic range of 20 dB)
◊ Fault status
◊ Full protection of any VSWR condition, Open or Short, into any phase angle
◊ Remote control access via the Ethernet, RS-232, or IEEE-488 communications ports
◊ Integrated automatic leveling control
◊ Standby/Enable control
◊ Front panel display for easy viewing of system status locally
◊ Keypad buttons for full local control

Circuit control

◊ Standby (amplifier disable)
◊ Gain/power setting with 20 dB range
◊ VSWR protection Reset
◊ ALC On/ Off
◊ External interlock circuit

System status	I/O	Level
◊ RF ready	Output	>3 Vdc (5 V max) = on, <0.5 Vdc = off
◊ RF standby	Output	>3 Vdc (5 V max) = RF on, <0.5 Vdc = RF off
◊ RF fault	Output	>3 Vdc (5 V max) = no fault, <0.5 Vdc = fault
◊ Over temperature	Output	>3 Vdc (5 V max) = no fault, <0.5 Vdc = fault
◊ Forward Power detected voltage	Output	Analog Voltage 0-10 Vdc range
◊ Reverse Power detected voltage	Output	Analog Voltage 0-10 Vdc range
◊ Amplifier online/standby	Input	>3 Vdc (5 V max) = standby, <0.5 Vdc = online
◊ Input RF relay (SPDT)	Input	>3 Vdc (5 V max) = RF off <0.5 Vdc = RF on
◊ Input RF fault reset	Input	Active high, momentary low, then high to reset

Circuit protections

◊ Thermal overload (85˚C baseplate activates thermal protection)
◊ Over current
◊ Over voltage
◊ Open or Short VSWR conditions
◊ RF Input overdrive

RF Input Switch

◊ Input RF Switch
◊ Isolation is > 25 dB
◊ Switching speed is < 100µs
◊ <0.5 Vdc = Input RF applied to system (Normal operation)
◊ >3 Vdc (5 V max) = Input RF applied to 50 Ohm internal switch (RF off or protection mode).

Certified to ISO 9001:2008

TÜVRheinland Precisely Right.

Made in the U.S.A.

Approved By: _____ Date: _____