



## S31 EW-ECM Series Solid State Microwave Power Amplifiers

**0.8 – 3.0 GHz • 5 Watts to 500 Watts**

Instruments for Industry is a supplier of state-of-the-art solid-state RF power amplifiers. Our S31 EW-ECM Series products are specifically designed for EW Jamming applications. These products are available in a wide range of power levels from 5 watts to 500 watts in multiple frequency ranges from 800MHz – 6.0GHz. (See other model data sheets for other frequency ranges.)

IFI RF amplifiers are very conservatively designed to operate below maximum ratings for ruggedness and long term reliability. Gallium Nitride technology is utilized in these broadband products to 6.0GHz. Operation, safety, and ease of use, are paramount in IFI product designs. The IFI S31 EW-Series models include a full complement of RF and hardware protection circuits including high VSWR, over-current, voltage protection, redundant thermal and airflow sensors for the module and the system level.

Our RF power amplifiers feature heavy-duty individually shielded aluminum housings at the module level. This concept of shielded modular design minimizes internally produced EMI signal leakage and provides easy access for field service and rapid turnaround at depot level repair facilities.

Our extremely fast gate bias controls at all of the amplifier modules permit a fast access noise quieting function in less than 1 microsecond. Optional PIN diode T/R switches provide complete EW solutions with very low receiver path losses typically in the range of 1.5dB.

IFI system level products include an easy to read backlit LCD screen display for immediate indication of forward/reverse RF power, system status and all self-diagnostic information. The systems also provide interface capabilities for control and status by, Ethernet, RS-232 (or RS-422 or RS-485) and IEEE interface formats.

From the ground up the S31 EW-ECM Series are structurally engineered to withstand operation in mechanically hostile environments withstanding the shock and vibration of military vehicles and portable shelters. Ruggedized versions are available for airborne and shipboard applications.

### IFI RF Power Amplifier Features:

- Solid State GAN Design
- Instantaneous Broadband Frequency range
- Modular Design Construction
- Rugged construction & High Reliability
- High Speed T/R switching (Optional)
- Backlit LCD Display
- Integrated Force Air Cooling
- Self-diagnostic circuitry
- IEEE-488 interface, RS232 & Ethernet



### Models & General Specifications:

Model Number	Frequency Range (GHz)	Rated Power (watts minimum)	P1dB Power (watts minimum)	Gain (dB min)	Mains (kVA)	Weight (Pounds)	Size (Inches)
S31-5	0.8-3.0	5	5	37	.10	30 Lbs	5.25" H x 19" W x 24" D
S31-10	0.8-3.0	10	8	40	.10	33 Lbs	5.25" H x 19" W x 24" D
S31-20	0.8-3.0	20	15	43	.20	35 Lbs	5.25" H x 19" W x 24" D
S31-25	0.8-3.0	25	20	44	.25	37 Lbs	5.25" H x 19" W x 24" D
S31-40	0.8-3.0	40	30	46	.30	45 Lbs	5.25" H x 19" W x 24" D
S31-50	0.8-3.0	50	40	47	.40	60 Lbs	7.00" H x 19" W x 24" D
S31-75	0.8-3.0	75	60	49	.60	75 Lbs	7.00" H x 19" W x 24" D
S31-100	0.8-3.0	100	80	50	0.8	80 Lbs	8.75" H x 19" W x 24" D
S31-150	0.8-3.0	150	130	52	1.2	100 Lbs	8.75" H x 19" W x 24" D
S31-200	0.8-3.0	200	150	53	1.5	120 Lbs	10.5" H x 19" W x 25" D
S31-250	0.8-3.0	250	200	54	2.0	200 Lbs	2x 10.5" H x 19" W x 25" D
S31-300	0.8-3.0	300	250	55	2.5	220 Lbs	2x 10.5" H x 19" W x 25" D
S31-400	0.8-3.0	400	350	56	3.0	450 Lbs	Rack Integrated
S31-500	0.8-3.0	500	450	57	4.0	500 Lbs	Rack Integrated



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### Standard Features for IFI S31 EW-Series Solid State Amplifiers

<b>Standard Features:</b>	VSWR Reflected Power Protection, the unit operates without damage or oscillation into any magnitude of phase or load impedance, Open & Short Circuit Protection.
	* Alternate Prime Power ( <i>specify at time of order</i> )
	GPIB IEEE 488 & RS232 Remote Control
	RF Sample Port on the Front Panel, <a href="#">112R for rear panel</a>
	Internal Pre-amplification to obtain rated output power with an input level of 0 dBm or less.
	Gain Control Local & Remote, 30dB range
	RF Input/Output Connectors on the Front Panel, <a href="#">118R for rear panel</a>
	Internal Systems Diagnostics & Status Indicators
	Total/Operate Elapsed Time Metering in hours
	RF Safety Interlock
	Forward/Reflected Power Indication simultaneously on Front Panel display

### IFI S31 EW-Series Solid State Amplifier Specifications

Frequency Range:	As Specified in Model Table
Rated Output Power:	As Specified in Model Table
Gain @ Rated Power:	As Specified in Model Table
Prime Power:	As Required (Some are listed below)
Input/output Impedance:	50 ohms
RF Input/ Sample Connectors:	Type N Female, unless specified otherwise
RF Output Connector:	Type N Female <a href="#">Other connectors available by request or specification</a>
Input VSWR:	2.0:1
Output VSWR:	2.5:1
Operating Temp:	0° to 50° C
Non-operating Temp:	-40° to 70° C (50,000 feet max)
Humidity:	95% without condensation
Altitude:	10,000 feet
Cooling System:	Air cooled, self contained
Modulation:	AM,FM, Pulse
Configuration:	Rack Mount as specified in Model Table, or Rack/Cabinet Integrated
Spurious Outputs:	<-60 dBc nominal
Harmonics:	-20dBc minimum @ Linear Power

### Standard Prime Powers:

100, 115, 120 VAC ±10% 50/60 Hz, single phase
220, 230, 240VAC ±10% 50/60 Hz, single phase
120/208 or 200/220/230/240VAC ±10% 50/60 Hz, three phase Wye or Delta power is available
200/220/230/240VAC ±10% 50/60 Hz, three phase Wye or Delta power is available
<a href="#">Special Prime Powers other then listed are subject to availability</a>

### Some Available Options for IFI S31 EW-Series Solid State Amplifiers

<b>Option 110-1E:</b>	GPIB IEEE-488 RS232 and Ethernet Remote Control
<b>Option 110-2:</b>	GPIB IEEE-488 and RS 422 Remote Control
<b>Option 110-3:</b>	GPIB IEEE-488 and RS 485 Remote Control
<b>Option 113:</b>	Chassis slides for a 19" rack mounting
<b>Option 118A:</b>	RF Input On Front Output On Rear
<b>Option 118B:</b>	RF Input On Rear Output On Front



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### Outline Configurations:





