

Solid State Broadband High Power Amplifier

2195
2000 - 6000 MHz / 120 Watts

The 2195 is suitable for high bandwidth, high power CW, modulated, and pulse applications. This amplifier utilizes high power GaN devices that provide wide frequency response, high gain, high peak power capability, and low distortions. Exceptional performance, long-term reliability and high efficiency are achieved by employing advanced broadband RF matching networks and combining techniques, EMI/RFI filters, and all qualified components. The amplifier is constructed within single 3RU drawer including the forced air-cooling. Available operating voltage configurations are single-phase 100-240 VAC up to 400Hz and 28 VDC.



SKU#: 2195-001

The amplifier includes a built-in control and monitoring system, with protection functions which preserve high availability. Remote management and diagnostics are via an embedded web server allowing network managed site status and control simply by connecting the unit's Ethernet port to a LAN. Using a web browser and the unit's IP address (IPV4) allows ease of access with the benefit of multi-level security. The control system core supports hardware encryption, runs an embedded OS (Linux), has a built-in non-volatile memory for event recording, and factory setup recovery features. The extended memory option allows storage of control parameters and event logs.

Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.

- Solid-state Class AB design
- Suitable for CW, AM, FM and pulse (Consult factory for other modulation types)
- Compact Modular design
- 50 ohm input/output impedance
- Built-in Control, Monitoring and Protection functions
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS over temperature conditions (-10 to +50°C)

| Parameter | Symbol | Min | Typ | Max | Unit |
|---|------------------|------|-----|-----------|------|
| Operating Frequency | BW | 2000 | | 6000 | MHz |
| Power Output CW <i>(Note 1)</i> | P _{SAT} | 120 | 130 | | Watt |
| Power Gain @ 1dB Gain Compression | G _{1dB} | 51 | | | dB |
| Input Power for Rated P _{SAT} | P _{IN} | | 0 | | dBm |
| Input Power Range | P _{IN} | -3.0 | | +3.0 | dBm |
| Small Signal Gain Flatness / Leveled ALC | ΔG | | | ±3.5/±1.5 | dB |
| Gain Adjustment Range | VVA | 20 | | | dB |
| Input Return Loss | S ₁₁ | | | -10 | dB |
| Noise Figure @ maximum gain | NF | | | 15 | dB |
| Third Order Intermodulation Distortion 2-Tone @ 43dBm/Tone, 1MHz Spacing | IM3 | | -28 | | dBc |
| Harmonics @ P _{OUT} = 120W | 2 ND | | | -10 | dBc |
| | 3 RD | | | -20 | dBc |
| Spurious Signals | Spur | | | -60 | dBc |
| Operating Voltage | V _{AC} | 100 | | 240 | Volt |
| | V _{DC} | 24 | 28 | 32 | |
| Power Consumption @ 120W CW | P _D | | | 1250 | Watt |

Notes:

1. CW measurement performed in MGC Mode (Manual Gain Control)

MECHANICAL SPECIFICATIONS

| Parameter | Value | Unit |
|---|------------------------------------|-------|
| Dimensions W x H x D (excludes connectors, handles and brackets) | 17 x 5.25 x 22 | Inch |
| Weight | 65 | Pound |
| RF Connectors Input/Output | Type-N, Female | |
| RF Sample | Type-SMA, Female | |
| Blanking Input | Type-BNC, Female | |
| Cooling | Built-in forced-air cooling system | |

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ENVIRONMENTAL CHARACTERISTICS (Qualification Data available for review):

| Parameter | Symbol | Min | Typ | Max | Unit |
|--|------------------|-----|-----|-----|------|
| Operating Ambient Temperature | T _A | -10 | | +50 | °C |
| Non-operating Temperature | T _{STG} | -40 | | +85 | °C |
| Relative Humidity (non-condensing) | RH | | | 95 | % |
| Shock / Vibration - MIL-STD-810F Shock Method 516.5, Vibration Method 514.5 | SH / VI | | | | |

PROTECTIONS:

| Parameter | Specification | Unit |
|--------------------------------|---|------|
| Input Overdrive | +10 dBm | Max |
| VSWR protection | At 3:1 – PA backs-off output power to a safe operating level – no system shutdown, “On Air” time is maximized | - |
| Thermal – Graceful Degradation | Ambient 50°C | Min |
| Default Data Recovery | Factory Default Calibration Recovery | |

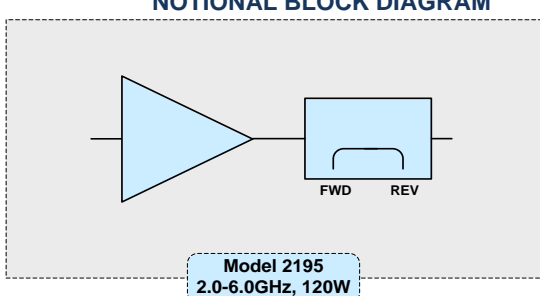
COMMUNICATION INTERFACES:

| Function | Utility | Connector |
|------------------------------------|---|------------------------|
| Ethernet | Network management of device / web interface | RJ45 |
| USB | Mass storage / Expansion Bus | USB 1.x/2.0 compatible |
| RS-232 (default) RS-422 (optional) | Serial management of device / local operator access | D-Sub 9-position Male |

SYSTEM I/O CONNECTOR – 14-Position

| Pin # | Description | Specification |
|-------|----------------------------|--|
| 1 | N/C | No Connection (reserved) |
| 2 | N/C | No Connection (reserved) |
| 3 | Summary Fault | Summary Fault: Active TTL Logic Low ($\leq 0.7V$), (<i>Internally Pulled-High</i>) |
| 4 | N/C | No Connection (reserved) |
| 5 | Shutdown | Amplifier Disable: TTL Logic Low ($\leq 0.7V$), (<i>Internally Pulled-High</i>) |
| 6 | Aux P/S TP | +12.0V _{DC} $\pm 2.0V$ (resettable 0.5amp fuse) |
| 7 | Main P/S TP | +48.0V _{DC} $\pm 4.8V$ (resettable 0.5amp fuse) |
| 8 | GND | Ground |
| 9-11 | Open drain control | Site management utility (reserved) |
| 12&13 | Digital I/O (configurable) | Site management utility (reserved) |
| 14 | GND | Ground |

AVAILABLE OPTIONS

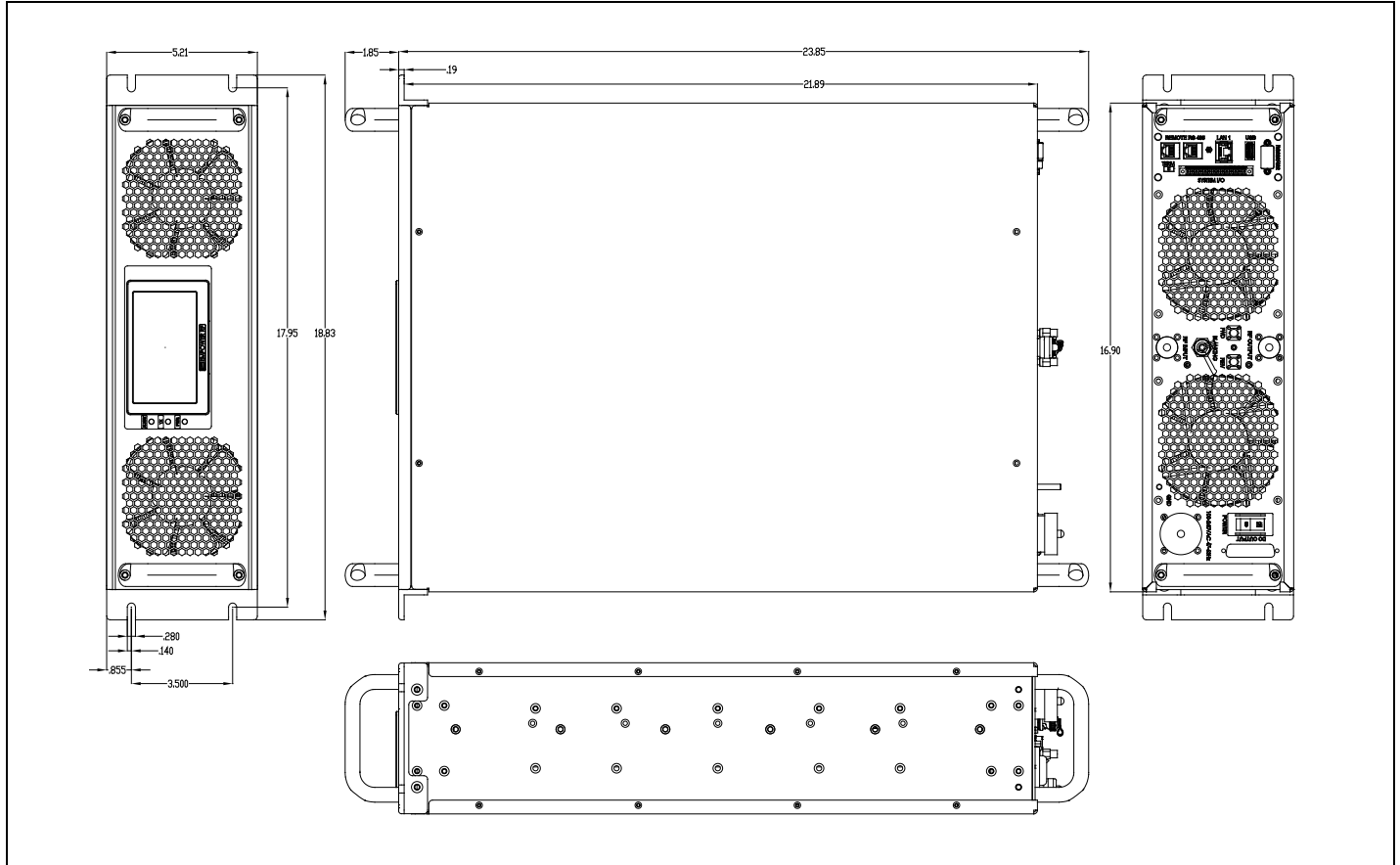
| 2195-xxx | NOTIONAL BLOCK DIAGRAM |
|--|--|
| -001 100-240VAC, 1-phase, 47-63 Hz, Rear RF Connectors |  <p style="text-align: center;">Model 2195 2.0-6.0GHz, 120W</p> |
| -002 28 VDC, Rear RF Connectors | |
| -003 100-240VAC, 1-phase, 47-63 Hz, Front RF Connectors | |
| -004 28 VDC, Front RF Connectors | |
| Contact us for other available options: sales@empowerrf.com | |
| Standard Features: -LCD Control, Ethernet & Serial Comm -Main RF Connector: Input & Output [Type-N, F] -Sample Port: SMA-F [Forward & Reverse] -Blanking/Gating Port: BNC-F -Rack Slides, Handles and Rackmount Bracket | |

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OUTLINE DRAWING – (shown with Rear RF Connectors)



Front and Rear Views

