



## STR5175 C series 750W Indoor TWTA

The new generation of STR Series rack mount TWTAs provide an easy to operate, colour touch screen interface with a multi-functional selector wheel. The colour touch screen display provides clear, easy to read status of the amplifier's operation, including: RF output power monitoring, heater, helix monitoring, & TWT temperature. Set up screens are intuitive and simple to manage and the touch panel allows full local control and monitoring of all amplifier parameters, including automatic level control, system event logging and graphical trend analysis. Remote control operation can be made via RS485 or through an Ethernet interface, and a web page interface is also available. If a redundancy system is required, this can be set up and controlled via the touch screen. Changes to operating parameters can be locked and password protected if required.

The HPA incorporates a high efficiency multi-collector TWT powered by an advanced power supply built on over 30 years of experience in the design and manufacture of satellite amplifiers.

The company's products have an enviable reputation for performance, robust quality and reliable service.

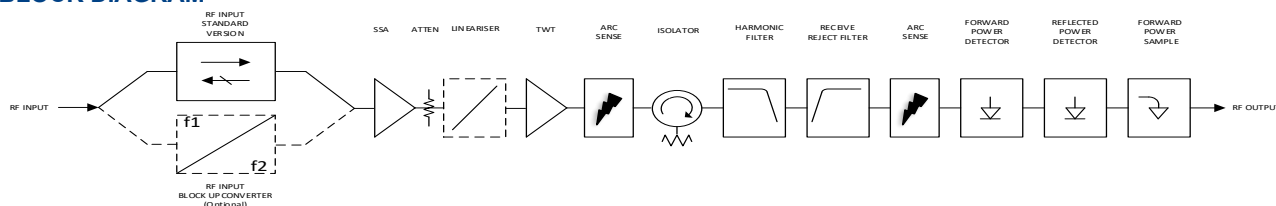
### Features

- Compact 4RU enclosure
- Touch screen control
- Ethernet interface
- Remote diagnostics
- Forward and reverse power monitoring
- TWTA performance Event & Data logging
- Constant Power Control
- Uplink Power Control (UPC)
- Redundant Control - contains control and drive circuits for 1:1 or 1:2 Redundancy

### Options

- L-Band Block upconverter
- Auto sense Int/Ext Reference Source

## BLOCK DIAGRAM



## RF Performance:

|           |                   |
|-----------|-------------------|
| Frequency |                   |
| CC1       | 5.850 – 6.425 GHz |
| CC2       | 5.850 – 6.650 GHz |
| CC3       | 5.850 – 6.725 GHz |
| CC4       | 5.850 – 7.025 GHz |

|                |                          |
|----------------|--------------------------|
| Output Power   | (for load VSWR ≤ 1.5:1)  |
| TWT Power      | 58.8 dBm (750 W)         |
| Rated (flange) | 58.1 dBm (650 W) typical |

### Gain

|                                                                |                                                                    |
|----------------------------------------------------------------|--------------------------------------------------------------------|
| Gain                                                           | ≥ 70 dB                                                            |
| Variation, 80 MHz, $\Delta G_{80\text{MHz}}$                   | ≤ 0.8 dB peak-peak                                                 |
| Variation, 750 MHz, $\Delta G_{750\text{MHz}}$                 | ≤ 2.5 dB peak-peak <sup>1</sup><br>≤ 4.0 dB peak-peak <sup>2</sup> |
| Slope, $\Delta G_{\text{SLOPE}}$                               | ± 0.04 dB/MHz                                                      |
| Gain Stability vs. Time<br>@ constant drive & temp             | ± 0.25 dB/24 hours                                                 |
| Gain Stability vs. Temperature<br>@ constant drive & frequency | ± 1.0 dB                                                           |
| Adjustment range, $G_{\text{ADJ}}$                             | 30.0 dB typical                                                    |
| Adjustment step size                                           | 0.1 dB                                                             |

### Linearity

|                                   |                                                                                                                  |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------|
| AM/PM                             | ≤ 2.5°/dB at Prated – 6 dB                                                                                       |
| Inter-modulations (IMD)<br>2-tone | ≤ -18 dBc @ $P_O \leq P_{\text{LIN}} - 1 \text{ dB}^1$<br>≤ -26 dBc @ $P_O \leq P_{\text{LIN}} - 1 \text{ dB}^2$ |
| Spectral Re-growth (SR)           | ≤ -30 dBc @ $P_O \leq P_{\text{LIN}} - 1 \text{ dB}^2$                                                           |
| Noise Power Ratio (NPR)           | ≤ -19 dBc @ $P_O \leq P_{\text{LIN}} - 1 \text{ dB}^2$                                                           |

|                                            |                                                                  |
|--------------------------------------------|------------------------------------------------------------------|
| Input VSWR (Return Loss)                   | ≤ 1.3:1 (17.7 dB) <sup>3</sup><br>≤ 1.6:1 (12.7 dB) <sup>4</sup> |
| Output VSWR (Return Loss)                  | ≤ 1.3:1 (17.7 dB)                                                |
| Load VSWR (no damage)                      | ≤ 2.0:1 (9.5 dB)                                                 |
| Harmonic 2 <sup>nd</sup> & 3 <sup>rd</sup> | ≤ -60 dBc                                                        |

### Noise Power

|                         |                                    |
|-------------------------|------------------------------------|
| Transmit Band ( $T_X$ ) | ≤ -70 dBW/4KHz                     |
| Receive Band ( $R_X$ )  | ≤ -150 dBW/4KHz<br>(3.4 – 4.2 GHz) |

|                                  |                                                                                                                                                   |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Spurious @ $P_O \leq \text{MLP}$ | ≤ -60 dBc                                                                                                                                         |
| Residual AM                      | ≤ -50 dBc, $f < 10\text{KHz}$<br>≤ -20(1.5+LOG(frequency KHz))dBc,<br>$f = 10\text{KHz}$ to 500KHz<br>≤ -85 dBc > 500KHz                          |
| Phase Noise                      | 10 dB below IESS requirement <sup>3</sup><br>3 dB below IESS requirement <sup>4</sup><br>≤ -50 dBc, AC fundamental<br>≤ -47 dBc, Sum of all spurs |

### Group Delay (any 80 MHz)

|           |                                   |
|-----------|-----------------------------------|
| Linear    | 0.01 nsec/MHz, max                |
| Parabolic | 0.005 nsec/MHz <sup>2</sup> , max |
| Ripple    | 0.5 nsec/Peak-Peak, max           |

## Prime Power:

|                   |                                                  |
|-------------------|--------------------------------------------------|
| AC Input Voltage  | 200-240 VAC ± 10%, single phase<br>50-60 Hz ± 5% |
| Full Load Current | 13 A max @ 200 VAC                               |
| Power Consumption | 2200 VA typical<br>2450 VA maximum               |
| Power Factor      | 0.98 typical<br>0.96 minimum                     |

## Environmental:

|                     |                                                                                                          |
|---------------------|----------------------------------------------------------------------------------------------------------|
| Ambient Temperature | -10°C to +55°C                                                                                           |
| Relative Humidity   | 100% condensing                                                                                          |
| Altitude            | 12,000 ft. with standard adiabatic de-<br>rating of 2°C/1000 ft., operating<br>50,000 ft., non-operating |
| Shock               | 15 g peak, 11mSec, 1/2 sine                                                                              |
| Vibration           | 3.2 g rms, 10-500 Hz                                                                                     |
| Acoustic Noise      | 65 dBA @ ≥3 ft. from amplifier                                                                           |
| Solar Gain          | 1120 2/m <sup>2</sup>                                                                                    |

## Mechanical:

|               |                             |
|---------------|-----------------------------|
| Dimensions    | Request outline             |
| Length        | 60.96 cm                    |
| Width         | 48.26 cm                    |
| Height        | 17.78 cm                    |
| Weight        | 32 kg typical               |
| RF Input      | Type N(f) 50 ohm            |
| RF Output     | CPRG-137                    |
| RF Sample     | Type N(f) 50 ohm            |
| AC Input      | Amphenol C016 20C003 200 12 |
| Ethernet      | RJF                         |
| Com           | 9-Way D-Type                |
| Aux Interface | 25-Way D-Type               |
| WG Switch     | 37-Way D-Type               |

<sup>1</sup> No Linearizer

<sup>2</sup> With Linearizer

<sup>3</sup> No Internal BUC

<sup>4</sup> With Internal BUC