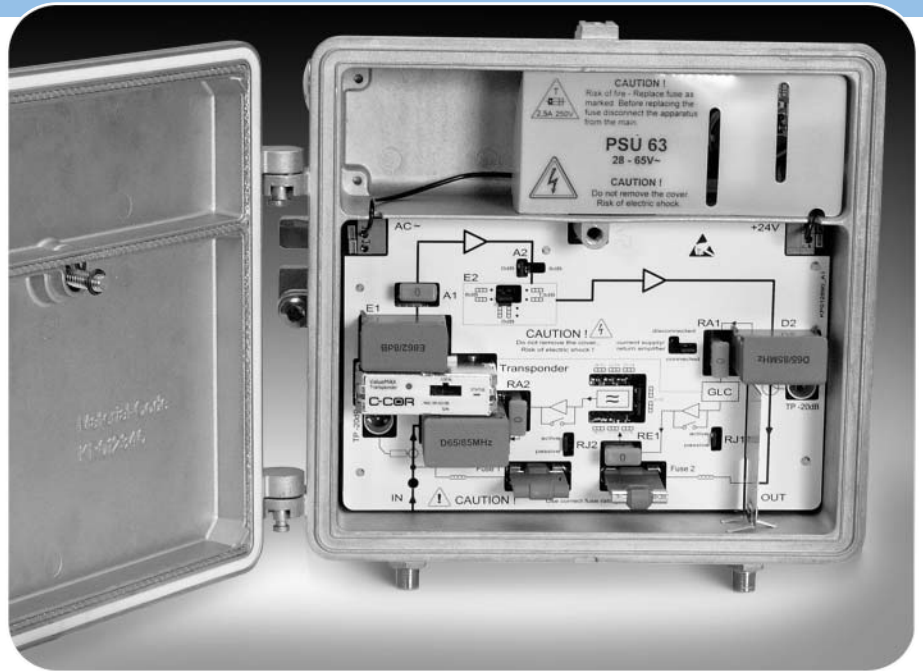


## Flex Max220

### Plus

## Distribution Amplifier



### Applications

- End-of-line distribution amplifier or tap driver
- Medium and large multi-dwelling unit architectures
- EMS support via an HMS/AM protocol transponder

The C-COR Flex Max220 Plus Distribution Amplifier combines advanced RF technology with installer friendly features to deliver signals to the subscriber at lower expense. The Flex Max220 Plus Amplifier is dedicated to systems in which input sources are cable drops.

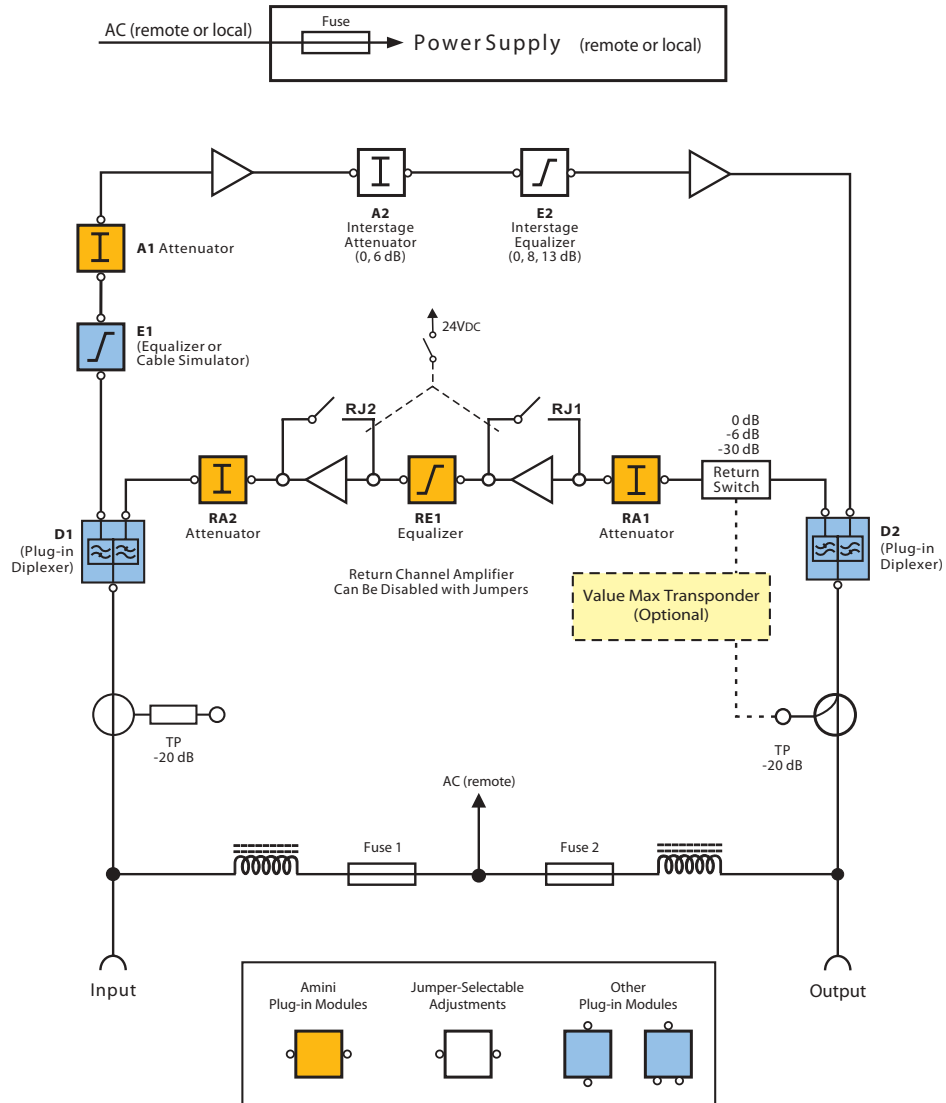
The Flex Max220 Plus Amplifier is the most advanced end-of-line distribution amplifier to meet the requirements for modern HFC multi-transport networks. Applied robust Gallium Arsenide technology improves system performance and drives total system costs down. The convenient, cost-effective, on-board interstage equalizer compensates for frequency dependent attenuation of coaxial cables. The on-board interstage equalizer has jumper-selectable 0, 8, or 13dB tilt options, and the on-board interstage attenuator has jumper-selectable 0 or 6dB options.

With its 37dB gain, the Flex Max220 Plus covers all applications for modern high performance distribution amplifiers. In addition the Flex Max220 Plus is available with an HMS/AM protocol transponder, which provides system integrity, and combined with the on-board return path ingress switch, provides gate level control.

### Features

- Apartment amplifier with GaAs input hybrid and high level power doubler output
- Plug-in diplexers
- Input plug-in keyed for equalizers or cable simulators
- Jumper-selectable interstage attenuator with 0/6dB options and interstage equalizer with 0/8/13dB tilt options
- Improved system reliability with HMS/AM compliant transponders controlling an on-board return ingress switch

# Flex Max220 Plus Distribution Amplifier



**Flex Max220 Plus Distribution Amplifier Block Diagram**

## Specifications

### General Specifications

|   |  |
|---|--|
| Band Coverage                                   | 47/54/70/85 to 862 MHz   |
| Frequency Response, 85 to 862 MHz               | ±0.75 dB   |
| Noise Figure                                    | 8.0 dB, typ.   |
| Return Loss, excludes diplexers crossover range | > 18 dB at 40 MHz (–1.5 dB/octave up to 862 MHz)   |
| Gain, includes diplexers                        | 37 dB ± 1 dB   |
| Impedance                                       | 75 Ohm   |
| Testpoints                                      | Bidirectional TP: –20 dB forward I/P; –18.5 dB return O/P<br>Directional coupler TP: –20 dB forward output |

### Performance Specifications

|                                |           |
|--------------------------------|-----------|
| @ Full 37 dB Gain (Note 1)     |           |
| CTB @ 112 dB $\mu$ V (52 dBmV) | ≤ –60 dBc |
| CSO @ 112 dB $\mu$ V (52 dBmV) | ≤ –60 dBc |
| @ 31 dB Gain (Note 2)          |           |
| CTB @ 110 dB $\mu$ V (50 dBmV) | ≤ –60 dBc |
| CSO @ 110 dB $\mu$ V (50 dBmV) | ≤ –60 dBc |

### Active Return Channel Amplifier, can be disabled with jumpers

|  |                            |
|--|----------------------------|
| Band Coverage  | 5 to 30/42/55/65 MHz       |
| Frequency Response, port to port                     | ±0.75 dB                   |
| Noise Figure   | 7.0 dB, typ.; 8.0 dB, max. |
| Return Loss  | > 18 dB                    |
| Station Gain, with diplexers and 0 dB Amini plug-ins |                            |
| With both amplifier stages                           | 24 dB                      |
| With one amplifier stage                             | 11 dB                      |
| Passive  | –3.5 dB                    |
| Output Level, IM2 ≥ 60 dB                            | 110 dB $\mu$ V (50 dBmV)   |

### Powering Specifications

|   |                                    |
|---|------------------------------------|
| Remote Power Supply                     | 28 to 65 VAC, 47 to 63 Hz          |
| Local Power Supply                      | 90 to 250 VAC, 47 to 63 Hz         |
| Power Consumption, typ., 85% efficiency | 16 W, without optional transponder |
| Power Passing Capability                |                                    |
| RF Input and Output                     | 3 A, max.                          |
| HUM, at max. remote feeding             | < –60 dBc                          |

### Plug-In Modules

|  |   |
|--|---|
| Diplexers                                  | D30/47 MHz, D42/54 MHz, D55/70 MHz, D65/85 MHz    |
| Cable Equivalents, fixed for up to 862 MHz | CE862/x, x= 2, 4, 6, 8 dB                         |
| Input Equalizers, fixed for up to 862 MHz  | E862/xx, xx=0 to 16 dB, in 2 dB increments        |
| Attenuators (Note 3)                       | Amini: 0 to 20 dB, in 1 dB increments<br>A862/0dB |
| Value Max Transponder                      | HMS and AM protocols                              |

### Physical and Environmental Specifications

|                                 |  |
|---------------------------------|--|
| Dimensions (W x H x D)          | 221 x 92 x 187 mm (8.8 x 3.9 x 7.5 in.)  |
| Weight, approx.                 | 2.0 kg (4.5 lbs)   |
| Connectors                      |  |
| RF Input and Output Ports       | 3.5/12 type; F-type, female; IEC type; PG11  |
| RF Testpoints                   | F-type, male   |
| Local Power Supply              | PG9  |
| Operating Temperature Range     | –40 to 60°C (–40 to 140°F), without permanent failure<br>–20 to 60°C (–4 to 140°F), guaranteed |
| Storage Temperature Range       | –40 to 70°C (–40 to 160°F)   |
| Protection According to IEC 529 | IP55   |

#### Notes:

- According to EN 50083-3, 41 CENELEC channel loading, and with diplexer modules, 8 dB slope, and 0 dB interstage attenuation.
- According to EN 50083-3, 41 CENELEC channel loading, and with diplexer modules, 8 dB slope, and 6 dB interstage attenuation.
- Amini attenuators are used to adjust the forward input level and return path output level and equalization. The A862/0dB module is used in the diplexer location when no return path is activated.

Specifications subject to change without notice

Ordering Information

|   |   |   |   |   |   |          |          |          |          |          |   |          |          |          |   |          |
|---|---|---|---|---|---|----------|----------|----------|----------|----------|---|----------|----------|----------|---|----------|
|   |   |   |   |   |   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |   | <b>6</b> | <b>7</b> | <b>8</b> |   | <b>9</b> |
| F | M | 2 | 2 | 0 | - | P        | P        | A        | x        | x        | - | x        | M        | 5        | - | x        |

| 1 Platform |      |
|------------|------|
| P          | Plus |

| 2 Diplexer (Frequency Split)  |                  |
|---|------------------|
| P   | Plug-in diplexer |
|   | a                |
| a) Available splits: 30/47, 42/54, 55/70, 65/85MHz (must order separately). |                  |

| 3 Return Channel Amplifier |               |
|----------------------------|---------------|
| A                          | Active return |

| 4 Power Supply                           |                            |
|--|----------------------------|
| 2  | Local powering (90–250VAC) |
| 6  | Remote powering (28–65VAC) |
|  | a                          |
| a) Select "N" in #5 block, <b>Fuse</b> . |                            |

| 5 Fuse  |                  |
|---|------------------|
| A   | Standard 4A fuse |
| N   | No fuse          |
| S   | Shorting bar     |
|   | a                |
| a) In case of local powering. Select "2" in #4 block, <b>Power Supply</b> . |                  |

| 6 RF Adapter |                             |
|--------------|-----------------------------|
| 3            | 3.5/12 type                 |
| F            | F-type                      |
| I            | IEC type                    |
| P            | PG11 entry only; no adapter |

| 7 RF Testpoint Connector |              |
|--------------------------|--------------|
| M                        | F-type, male |

| 8 Protection |      |
|--------------|------|
| 5            | IP55 |

| 9 Country Deviations (defines mains plug and country certifications) |                                 |
|--|---------------------------------|
| N  | No power cord (remote powering) |
| E  | Europe                          |
|  | a                               |
|  | b                               |
| a) Select "6" in #4 block, <b>Power Supply</b> .                     |                                 |
| b) Select "2" in #4 block, <b>Power Supply</b> .                     |                                 |

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