

CXE100 DISTRIBUTION AMPLIFIER



The CXE100 is a compact distribution amplifier. It is having all the modern features in flexible format. The important variables like gain, slope, diplexers, return path amplifier and power supply can be customised. However, the ordering can be made by one code. In the return unit there is an accurate input test point. If return module is not used, the return channel will be terminated automatically. The free plug-in module place at the input makes it possible to use cable simulators or temperature compensated pads.

Features

- GaAs amplifier technology used
- Improved power dissipation capacity
- Automatic return path termination
- Accurate return measurement point
- Mid-stage gain control
- Flat / Sloped output selection
- Plug-in diplex filters
- Flexible ordering system

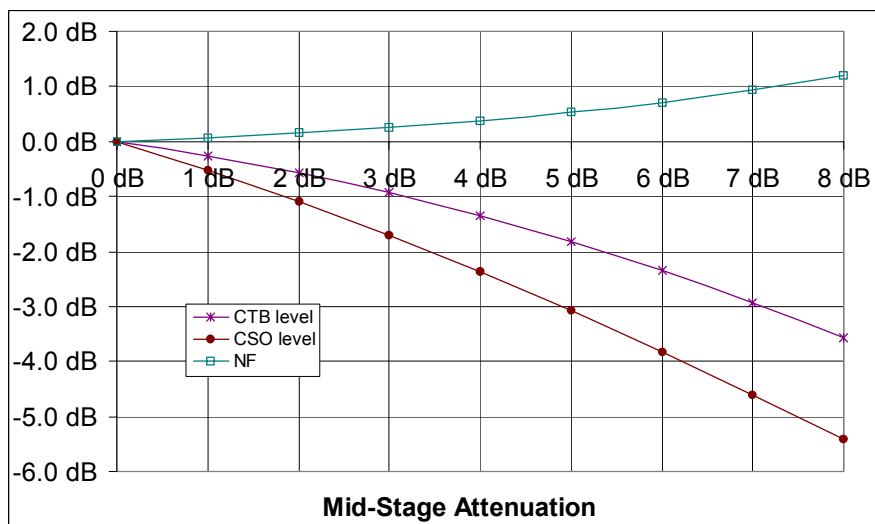
Technical specifications

Parameter	Specification	Note
Downstream signal path (all values with the diplex filters)		
Frequency range	47 / 54 / 70 / 85...862 MHz	
Return loss	18 dB	1
Gain	39.0	2
Input attenuator control range	15 dB	
Input equaliser control range	15 dB	3
Mid-stage slope	8 / 0 dB	4
Flatness	± 0.8 dB	
Group delay	2 ns	5
Noise figure	7.9	6
Test point	20 dB	7
Output level, DIN 45004B	122.0 dB μ V	8
CTB 42 channels	109.0 dB μ V	9
CSO 42 channels	110.0 dB μ V	9
XMOD 42 channels	108.0 dB μ V	9
CTB 110 / 77 channels	60.0 / 68.0 dBc	10
CSO 110 / 77 channels	60.5 / 61.5 dBc	10
XMOD 110 / 77 channels	58.0 / 64.0 dBc	10
More CTB / CSO / XMOD data	see note	11
Upstream signal path (Return module and diplex filters are installed into the CXE100)		
Frequency range	5...30 / 42 / 50 / 65 MHz	
Return loss	18 dB	
Gain	22 / -3 dB	12
Input test point	- 20 dB	
Gain control range	15 dB	
Equaliser control range	7 dB	13
Flatness	± 1.0 dB	
Noise figure	6.5 dB	
Output level, DIN 45004B	114.0 dB μ V	
General		
Hum modulation	70 dB	14
Maximum current feed through	2.0 A / port	14
Supply voltage	26...65 VAC / ±30...90 VDC 180...255 VAC	
Power consumption	12.5 W	15
AC-current need	see note	16
Input / Output connectors	F- f / IEC-f / PG11 / 5/8" / 3.5/12	
Test point connectors	F- female	
Dimensions	182 (210) x 140 (148) x 84 mm	
Weight	1.5 kg	
Operating temp	-40...+55 °C	
Class of enclosure	IP 54	
EMC	EN50083-2	
ESD	4 kV	17
Surge	6 kV	18

Notes

- 1) The limiting curve is defined at 40 MHz -1.5 dB / octave.
- 2) Typical gain value at 862 MHz. Guaranteed value is 1 dB lower. 0 dB cable simulator plug is used during the measurement. Gain is possible to set lower by using mid-stage equaliser of JDA9xx series.
- 3) This is the tested operating range of the input equaliser. The value indicates cable attenuation to be equalised at 862 MHz. Note, that plug-in place designed for the cable simulator can be used also for the plug-in input equaliser. Temperature compensated pads are also available.
- 4) Cable equivalent slope between 47...862 MHz.
- 5) Typical value for 4.43 MHz band. Measured at channel S2. At higher frequencies the specification is better.
- 6) Typical value to be used in network design. Guaranteed value is 1.5 dB worse.
- 7) Output TP is from a directional coupler and has a ±1.0 dB tolerance. The output test point can be used as an injection point for return path test signal. Input TP is a transformer type and it is having an accuracy of ±2.0. It can be used as the output test point for the return signal
- 8) DIN 45004B, typical value at 862 MHz with full gain.
- 9) According to EN50083-3. Amplifier output was 8 dB cable equivalent sloped. All results are typical values in room temperature, which can be used in system calculations. XMOD is measured at the lowest channel. Full gain was used. The highest recommended output level for the amplifier is 111.0 dBuV with 42 channels.
- 10) Measured with 77 and 110 NTSC channels. Amplifier output was 12 dB linearly sloped and the used levels were at 55 / 550 / 750 / 862 MHz 35.0 / 42.5 / 45.5 / 47.0 dBmV. All results are typical values in room temperature, which can be used in system calculations. XMOD is measured at 55.25 MHz. The high end of the frequency band up to 862 MHz was fulfilled with QAM channels having a level of -6 dB relative to analogue CW carriers. The highest recommended output level for the amplifier is 49 dBmV with 110 channels and 51 dBmV with 77 channels.
- 11) Here are listed the values with flat output and 42 channels. Conditions are like in note 9.

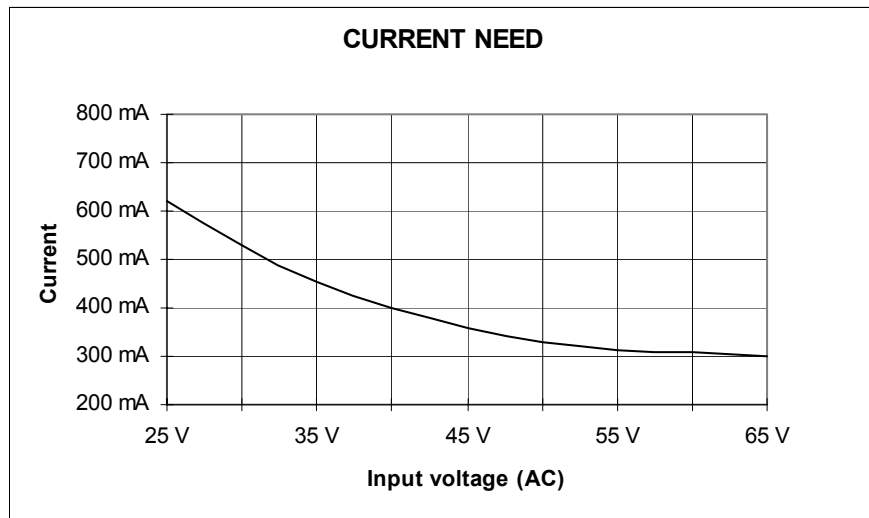
CTB:	107.0 dBuV
CSO:	106.0 dBuV
XMOD:	106.0 dBuV



This picture shows how the CTB / CSO / NF values are changing when the gain is adjusted with mid-stage attenuator from 39 to 31 dB. Valid for 8 dB sloped response and CENELEC raster.

- 12) Active (CXR022) / passive (CXR000) return module.

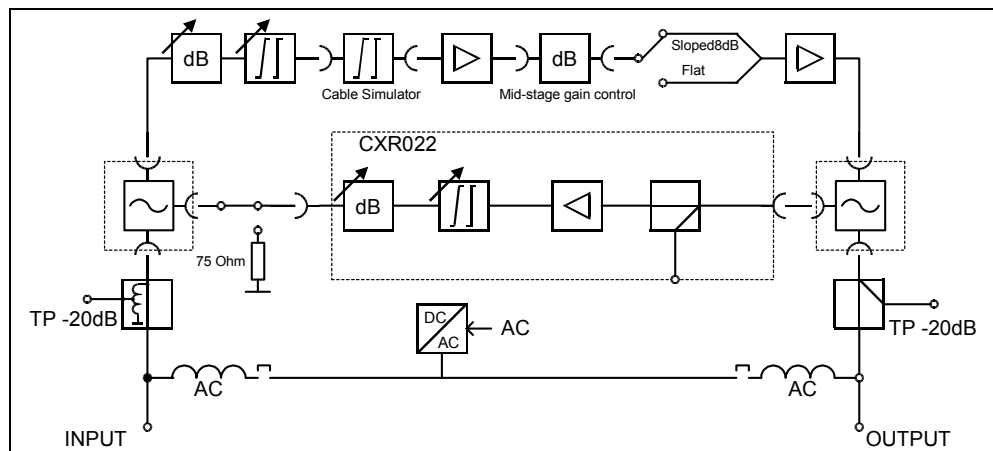
- 13) The pivot point is at 65 MHz. In 30 MHz operation the control range is 2.5 lower. This means that the reached maximum gain in 30 MHz operation is 2.5 dB lower when maximum slope is used
- 14) At any frequency from 10 to 862 MHz when the remote current is less than 2 A. The hum modulation is defined to be $20 \lg(2U/U_{pp})$, where $2U$ is the peak-to-peak value of the carrier and U_{pp} the peak-to-peak value of the modulation signal (50 and 100 Hz). 2 A is the maximum locally injected total current into the amplifier.
- 15) Valid with the active return path. With the passive return path the value is 2 W lower.
- 16)



AC-current with the active return module.

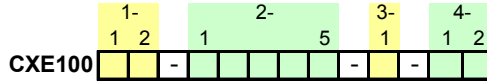
- 17) EN61000-4-2, contact discharge to enclosure and RF-ports.
- 18) EN61000-4-5, 1.2 / 50 μ s pulse to RF-ports.

Block diagram



Ordering information

CXE100 configuration map



1-1 Input connection	
A	PG11
B	5/8"
C	IEC
D	3.5/12
E	F
1-2 Output connection	
A	PG11
B	5/8"
C	IEC
D	3.5/12
E	F

2-1 Diplexer filters	
A XXX	30/47 MHz (2 x CXF030)
B XXX	42/54 MHz (2 x CXF042)
C XXX	50/70 MHz (2 x CXF050)
D XXX	65/85 MHz (2 x CXF065)
E XXX	65/85 MHz (CXF065 + CXF065 18)
K XXX	Forward path jumper (2 x CXF000)
X XXX	None

2-5 Interstage attenuation	
A	0 dB (JDA900)
B	2 dB (JDA902)
C	4 dB (JDA904)
D	6 dB (JDA906)
E	8 dB (JDA908)
X	None

3-1 Return path unit	
A	Active return 22 dB (CXR022)
B	Passive return -3 dB (CXR000)
X	None

4-1 Power supply	
A	Local powering, euro plug (230 VAC)
B	Remote powering (65 VAC)
C	Remote powering with cable clamp (65 VAC)
D	Local powering, UK plug (230 VAC)
4-2 Amplifier type	
A	39 dB, distribution amplifier

DOC0009980, Rev006