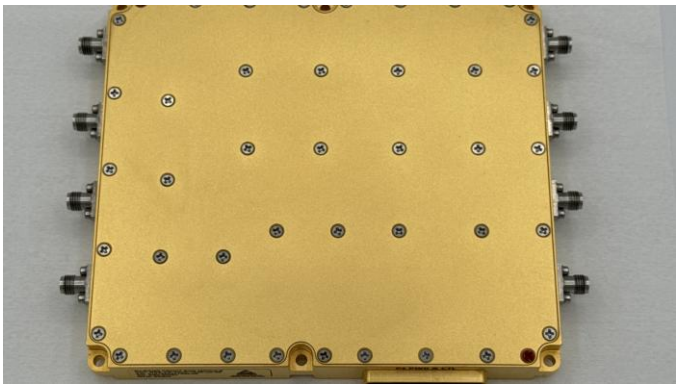
ERZIA
DATASHEET FAMILY

RF Front Ends

Amplifying Front End Family



RF Front Ends

ERZIA designs and manufactures RF front ends: modules built around one or several amplifying chains with integrated functions such as filtering, power limiting, gain and phase control, equalization and diplexing. Single or multi-channel, from 30 MHz to 50 GHz.

Main Features:

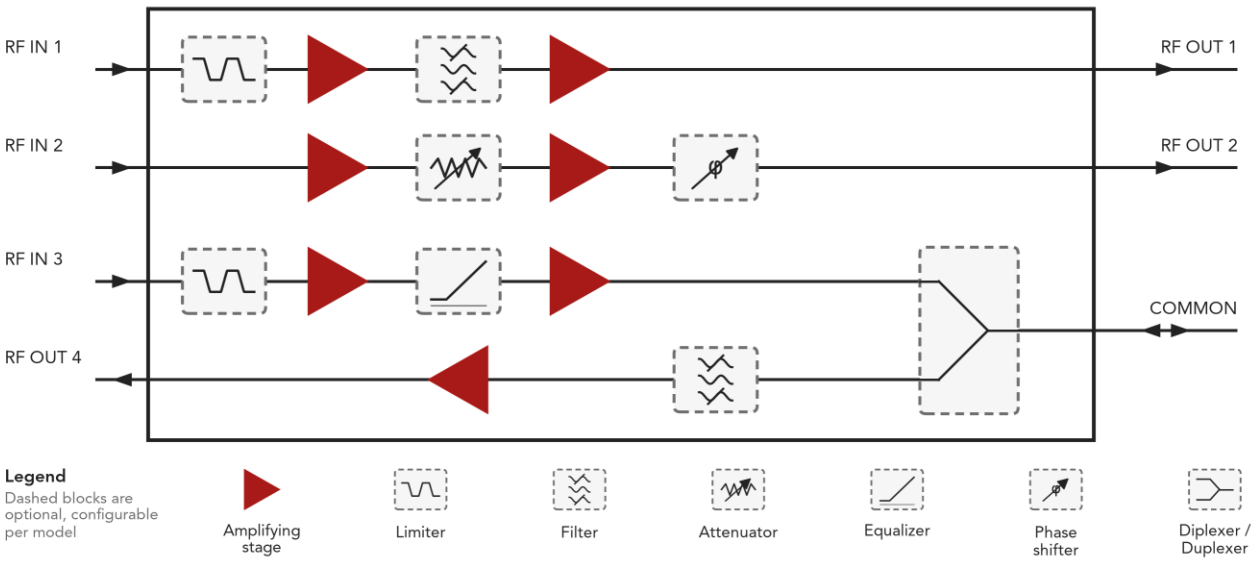
- Single and multi-channel chains
- From 30 MHz up to 50 GHz
- Gain up to 50 dB, Psat up to 24 dBm
- Noise figure down to 1.5 dB
- Input limiters up to 100 W peak
- Filtering, equalization and diplexing
- Digital gain and phase control
- Built-in test and calibration paths
- Combined TX/RX front ends
- Hi-reliability and dedicated screening

Typical applications:

- General RF transmitters and receivers
- EMC and spectrum monitoring
- Airborne, naval and ground systems
- Space and NewSpace payload receivers

Conceptual Family Overview

Several amplifying chains with add-on functionalities. The figure below shows a conceptual block diagram with four amplifying chains, including several additional and optional items, reflecting the intended configuration of a generic front end.



Tel: +34 942 29 13 42 sales@erzia.com www.erzia.com

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Front End Models

Model	Frequency (GHz)	Channels	Gain (dB)	Psat (dBm)	NF (dB)	Typical options for this model
ERZ-FE-0000-0600-RM	0.03-6 (1.5-30 MHz)	4 + 1	20	20	4	31.5 dB digital attenuator, 4:1 combined output, 19" 1U rack, Ethernet
ERZ-FE-0013-0205-20-2-NS	0.135-2.05	4	20	5	1.5	Switched filter banks, limiter, 1:2 split per chain, I²C, NewSpace
ERZ-FE-0020-4000-12	0.2-40	3	30 to 42 (equalized)	14	6.5	Diplexer, limiter, switched filter bank, 30 dB digital attenuator, power detector
ERZ-FE-0050-0200-18	0.5-2	1	18	19	7	Limiter, band-pass and tunable notch filter, calibration input, built-in test tone
ERZ-FE-0200-1800-12	2-18	1	12	13	9	Limiter, suspended-substrate band-pass filter, low consumption (2 W)
ERZ-FE-0200-1800-21	2-18	1	24	22	9	Limiter, suspended-substrate band-pass filter
ERZ-FE-0200-1800-IM	2-18 0.5-2	4	-6 to +10 (slope)	7	-	Input selection (60 dB isolation), gain-slope equalization, phase-matched 1:2 split
ERZ-FE-0200-1800-x4	2-18	4	29	18	4.5 to 6.5	Limiter, equalization, 6-bit attenuator, 6-bit 360° phase shifter, blanking, BITE
ERZ-FE-0900-1000-35	9-10	3 RX + 1 passive TX	34	17	2.5	TX/RX in one module, passive waveguide TX path with harmonic filtering, receiver protector, RF and VSWR detectors
ERZ-FER-0100-1800-x2	1-18	2	27	24	9	Limiter (100 W peak), bypass / attenuation gain states, BIT path

Typical values at 25 °C case temperature.
Frequency plan, number of channels and integrated functions can be tailored to each system.

Optional Functions

Function	Available implementations
Filtering	Band-pass, tunable notch, switched filter banks and sub-band filtering
Power limiting	Input limiters up to 100 W peak / 2 W CW
Gain control	Digital attenuators up to 31.5 dB (0.5 dB step), switched gain states, thermal compensation
Phase control	6-bit digital phase shifter, 0-360° in 5.625° steps
Equalization	Positive gain slope compensation for wideband chains
Diplexing & selection	Diplexers, input selection switches (60 dB isolation), splitting and combining
Built-in test	Calibration / test injection paths, internal test tone, power detectors
TX/RX integration	Passive waveguide TX path with harmonic filtering, receiver protection, delay line

Control & Construction

Feature	Value
Control interfaces	TTL, RS-422, SPI, I²C or Ethernet
Switching speed	From < 75 ns to < 1 µs depending on function
Channel matching	Gain and phase tracked chains (down to ±0.5 dB / ±1°)
RF interfaces	SMA, 2.92 mm, TNC, SMP / GPO
DC supply	Single supply, 5 to 28 V, with protections
Housing	Compact module, 19" rack unit or NewSpace housing
Configuration	Single or multi-channel in one housing

Configuration Options

Option	Available configurations
Frequency plan	Bands and sub-bands from 30 MHz to 50 GHz
Channels	Single or multi-channel selectable inputs, passive TX path
Gain	12 to 50 dB; fixed, switched or digitally controlled
Output power	Psat up to 24 dBm
Protection	Input limiters
Filtering	Band-pass, notch, filter banks and diplexers
Monitoring & control	Built-in test, power detectors and digital control
RF interfaces	SMA, 2.92 mm, TNC and SMP / GPO
DC supply	Single supply, 5 to 28 V depending on model

- Options are subject to engineering review. Contact sales@erzia.com.

Environmental Specifications (By Design, typical)

Operating Temperature:	-55 to +85 °C [1]	(MIL-STD-810F, method 520.2)
Storage Temperature:	-55 to 125 °C	(MIL-STD-810F, method 520.2)
Vibration:	8g rms	(MIL-STD-810F, method 514.5)
Shock:	20g,11ms,saw-tooth	(MIL-STD-810F, method 516.5)
Acceleration:	15g	(MIL-STD-810F, method 513.5)

[1] Operating range depends on the model (e.g. -40 to +85 °C or -55 to +70 °C); see each model datasheet.

RoHS & REACH Compliance

These products are compliant with EU 2011/65/UE RoHS (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) and REACH (Registration, Evaluation, Authorization and restriction of Chemical substances) directives.

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Tel: +34 942 29 13 42 sales@erzia.com www.erzia.com