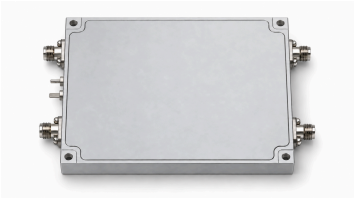
10.7–12.75 GHz Dual-Channel RF Downconverter Module



The module translates two 10.7–12.75 GHz RF input paths to two 1.7–3.75 GHz intermediate-frequency outputs. RF1 connects to IF1 and RF2 connects to IF2; both conversion paths use a shared internal 9 GHz local oscillator.

Each signal path integrates limiting, amplification, RF filtering, mixing and IF filtering. The specified downconversion gain is 50 dB minimum and the noise figure is 1.8 dB maximum. The recommended RF input level is −110 to −60 dBm; this range is an operating recommendation, not an input damage limit.

SMA signal ports, a +12 VDC feed-through power terminal and a separate grounding tab support system integration. The housing measures 100×80×13 mm, excluding connector protrusions, with four Ø3 mm mounting holes. Use the original block diagram and dimensioned outline for interface and installation review.

Structural illustration based on the dimensioned outline; not a product photograph.

Electrical specifications

Parameter	Specification	Unit
RF input frequency	10.7–12.75	GHz
IF output frequency	1.7–3.75	GHz
Downconversion gain	50 (minimum)	dB
Noise figure	1.8 (maximum)	dB
Recommended RF input power	−110–−60 (recommended) (Recommended operating input range; not an input damage limit.)	dBm
Saturated output power	10 (typical)	dBm
Leakage rejection	40 (typical) (Confirm the leakage path and measurement conditions with LCRF for acceptance testing.)	dBc
Internal local oscillator frequency	9	GHz
Operating supply voltage	+12	VDC
Operating current	400 (typical) (Verify power supply sizing for the intended operating configuration.)	mA

Environmental specifications

Parameter	Specification	Unit
Operating temperature	−40–+70	°C
Storage temperature	−40–+85	°C

Interfaces

Interface	Specification
RF inputs [1]	RF1 / RF2 (SMA)
IF outputs [2]	IF1 / IF2 (SMA)
Power terminal [3]	Feed-through capacitor
Ground terminal [4]	Grounding metal tab

[1] Two input ports, RF1 and RF2.

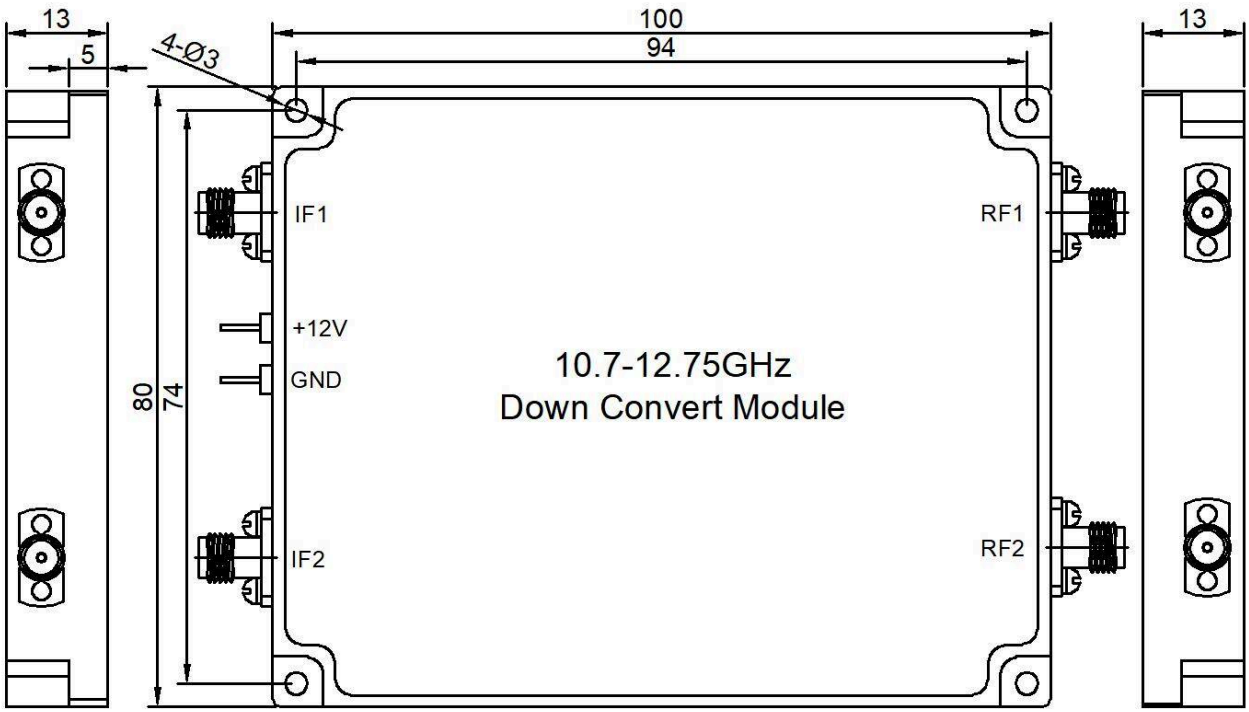
[2] Two output ports, IF1 and IF2.

[3] +12 VDC feed-through power terminal.

[4] Grounding metal tab, marked GND.

Mechanical specifications

Parameter	Specification	Unit
Housing dimensions	100×80×13 (Housing only; excludes SMA connector protrusions.)	mm
Mounting holes	4	-
Mounting-hole diameter	Ø3	mm
Mounting-hole centre spacing	94×74	mm



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Product overview

The module translates two 10.7–12.75 GHz RF input paths to two 1.7–3.75 GHz intermediate-frequency outputs. RF1 connects to IF1 and RF2 connects to IF2; both conversion paths use a shared internal 9 GHz local oscillator. Each signal path integrates limiting, amplification, RF filtering, mixing and IF filtering. The specified downconversion gain is 50 dB minimum and the noise figure is 1.8 dB maximum. The recommended RF input level is −110 to −60 dBm; this range is an operating recommendation, not an input damage limit. SMA signal ports, a +12 VDC feed-through power terminal and a separate grounding tab support system integration. The housing measures 100×80×13 mm, excluding connector protrusions, with four Ø3 mm mounting holes. Use the original block diagram and dimensioned outline for interface and installation review. Structural illustration based on the dimensioned outline; not a product photograph.

Signal paths and installation

Route 10.7–12.75 GHz signals to RF1 and RF2 and connect IF1 and IF2 to equipment covering 1.7–3.75 GHz. Both conversion paths share an internal LO. Provide +12 VDC at the feed-through power terminal and connect GND through the grounding tab. Operating current is 400 mA typical. Confirm the mating SMA interface and the receiver's power budget for the intended configuration. Allow space for the protruding signal connectors beyond the 100×80 mm housing outline. The four mounting-hole centres are spaced 94×74 mm. Operating temperature is −40 to +70 °C and storage temperature is −40 to +85 °C. Review the installation drawing and operating conditions before system qualification.

Document notice

Specifications are subject to revision. Before design release, confirm the current document revision and product-specific requirements with LCRF. The approved quotation and order documentation define the supplied configuration.