NOLLE ENGINEERING GmbH

PRODUCT CATALOG

3D-printed antennas for amateur radio and engineering customers.

NOLLE.ENGINEERING · EN

CONTENTS

IceConeFeed

The IceConeFeed family — our flagship circularly-polarised QO100 / S-band feed line. Includes the v2 and v2.1 main feeds, radomes, customised builds, helix elements, LNB adapter rings, the prime-focus adapter, and the radiation-pattern measurement add-on. Every unit is tuned on the bench before shipping.

IceConeFeed v2

NE-ICF-001 · ☐☐1⌀⌀

Original commercial 3D-printed dual feed for QO100. Operates as dual feed with all standard LNBs, no LNB modification required. Fully assembled and tuned to 2.4 GHz; for new stations the v2.1 with 1.3 dB lower LNB shadowing is recommended.

What it does

The IceConeFeed v2 is the original commercial version of the QO100 dual feed. It clips onto the LNB of a standard offset satellite dish and adds a 2.4 GHz QO100 narrowband uplink without modifying or removing the LNB — the LNB stays in place and continues to receive the 10.7 GHz downlink. Fully assembled, tuned, and tested before shipping.

Considering an upgrade? The newer IceConeFeed v2.1 has 1.3 dB lower LNB shadowing thanks to a tighter 2.2-turn helix with thinner wire — recommended for new stations or weak-signal QO100 narrowband work.

Specifications

Parameter	Value
Operating frequency (TX)	2400 MHz (QO100 narrowband uplink)
Polarization	LHCP (default) — RHCP available on request
SWR @ 2.4 GHz	< 1.1
LNB attenuation	2.0 dB
Helix turns	3.5
Wire diameter	3.5 mm
Connector	N-type
Max. supported LNB diameter	61 mm

Material	PETG, UV-resistant
Color	Orange/White (default), Custom on request
Assembly	Fully assembled and tuned at our facility

Quality control

Every unit is tuned to spec before it ships. The acceptance step on each unit is an S_{11} / SWR measurement at the operating frequency — units only leave the bench once they meet the published tolerance.

Full 3D radiation-pattern measurements (gain, axial ratio, half-power beamwidth, S_{21} sweeps across band) are part of our development and validation work and are also available as a service on customer-supplied antennas — see the Antenna Test Facility.

Polarization & dish use

This antenna is a dish feed — it sits in front of a parabolic reflector. Because the dish reflects the signal once and inverts the circular polarization, the feed must be the opposite handedness of the desired received signal. The default LHCP fits the QO100 narrowband uplink (which arrives RHCP at the satellite); pick RHCP if your dish has two reflectors (see this example).

Typical use cases

- QO100 narrowband CW/SSB operation from any 65–80 cm offset dish
- QO100 wideband DATV uplink
- Public-service / scientific operations from non-permanent sites — schools, expeditions, contests

Compatible parts & accessories

- LNB Adapter Ring — sizing rings for common LNBs
- LNB Golden Media 202 — modifiable for external LO
- Replacement Radome
- SMA-to-F adapter
- N 90° elbow

Documented in the Lab

- IceConeFeed Right Hand Circular — RHCP variant deep-dive
- IceConeFeed TX Performance — measured SWR, radiation pattern, uplink SNR
- United Nations on QO100 (4U100QO)
- Schulkontakt Antarktis — German school → Neumayer Station III

Reviews & demos

- Tech Minds — 2.4 GHz Dual Feed Helix For QO100 VERSION 2 (YouTube)
- RTL-SDR.com — Building a 3D-printed 2.4 GHz Dual Feed Helix for QO-100
- DL2SBA — IceConeFeed v2 hands-on with measured SWR (German)
- PA0EHG — DX Patrol vs nolle helix comparison (Dutch)
- YouTube — Ice Cone Feed versus DX Patrol Helix comparison
- AMSAT-DL Forum — community thread on dish compatibility

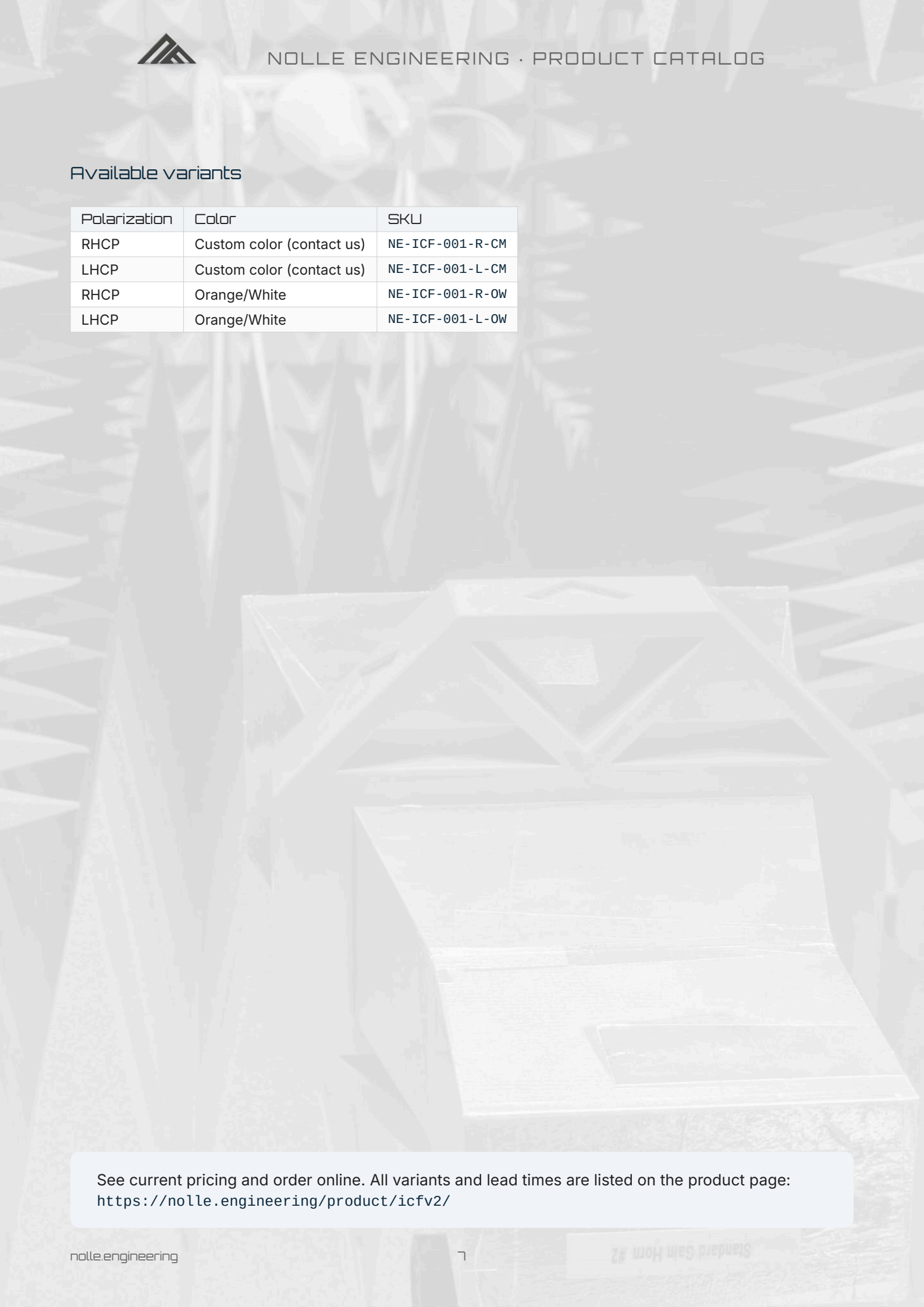
Field reports

- @F5rrsD — fitting on Technisat DigiDish 45 LNB mount
- @df6dbf — 15 W TX with PlutoSDR

Custom polarization (RHCP) and color combinations available on request — please use the contact form for a quote.

Available variants

Polarization	Color	SKU
RHCP	Custom color (contact us)	`NE-ICF-001-R-CM`
LHCP	Custom color (contact us)	`NE-ICF-001-L-CM`
RHCP	Orange/White	`NE-ICF-001-R-OW`
LHCP	Orange/White	`NE-ICF-001-L-OW`

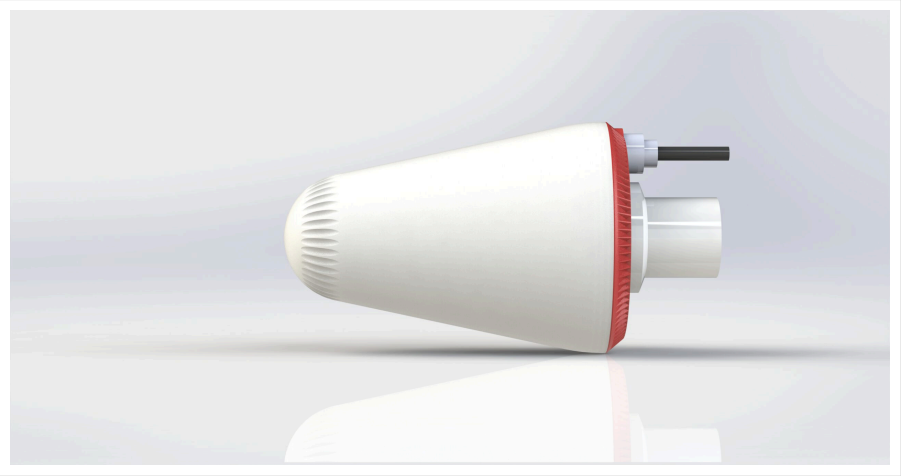


See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/icfv2/`

IceConeFeed v2.1

NE-ICF-002 · QO100

Plug-and-play 3D-printed dual feed for QO100 ground stations. Operates uplink (2.4 GHz LHCP) and downlink (10.7 GHz RX via LNB) on any standard offset dish without LNB modification. Current production version with 1.3 dB lower LNB shadowing than v2 — better receive SNR for weak-signal narrowband.



What it does

The IceConeFeed v2.1 is the current production version of the QO100 dual feed. It clips onto the LNB of a standard offset satellite dish and lets you transmit on the 2.4 GHz QO100 narrowband uplink without modifying or removing the LNB — the LNB stays in place and continues to receive the 10.7 GHz downlink. Fully assembled, tuned, and tested before shipping.

Specifications

Parameter	Value
Operating frequency (TX)	2400 MHz (QO100 narrowband uplink)
Polarization	LHCP (default) — RHCP available on request
SWR @ 2.4 GHz	< 1.05
LNB attenuation	0.7 dB (1.3 dB lower than v2)
Helix turns	2.2
Wire diameter	1.4 mm
Connector	N-type
Max. supported LNB diameter	61 mm
Material	PETG, UV-resistant
Color	Orange/White (default), Custom on request

Assembly	Fully assembled and tuned at our facility

Quality control

Every unit is tuned to spec before it ships. The acceptance step on each unit is an S_{11} / SWR measurement at the operating frequency — units only leave the bench once they meet the published tolerance.

Full 3D radiation-pattern measurements (gain, axial ratio, half-power beamwidth, S_{21} sweeps across band) are part of our development and validation work and are also available as a service on customer-supplied antennas — see the Antenna Test Facility.

Polarization & dish use

This antenna is a dish feed — it sits in front of a parabolic reflector. Because the dish reflects the signal once and inverts the circular polarization, the feed must be the opposite handedness of the desired received signal. The default LHCP fits the QO100 narrowband uplink (which arrives RHCP at the satellite); pick RHCP if your dish has two reflectors (see this example).

Typical use cases

- QO100 narrowband CW/SSB operation from any 65–80 cm offset dish
- QO100 wideband DATV uplink
- Public-service / scientific operations from non-permanent sites — schools, expeditions, contests

Compatible parts & accessories

- LNB Adapter Ring — sizing rings for common LNBs
- LNB Golden Media 202 — modifiable for external LO
- Replacement Radome
- SMA-to-F adapter
- N 90° elbow

Documented in the Lab

- IceConeFeed Right Hand Circular — RHCP variant deep-dive
- IceConeFeed TX Performance — measured SWR, radiation pattern, uplink SNR
- IceConeFeed v2.1 on DATV — wideband uplink validation
- A Student's Journey into QO-100 — first-station setup story
- United Nations on QO100 (4U100QO)
- Schulkontakt Antarktis — German school → Neumayer Station III
- Drone as Satellite: Custom S-Band IceConeFeed for ESA Indoor Navigation Research

Reviews & demos

- Tech Minds — ICE CONE V2.1 Dual Feed Antenna for QO100 (YouTube)

Custom polarization (RHCP) and color combinations available on request — please use the contact form for a quote.

Available variants

Polarization	Color	SKU
RHCP	Custom color (contact us)	NE-ICF-002-R-CM
LHCP	Custom color (contact us)	NE-ICF-002-L-CM

RHCP	Orange/White	NE-ICF-002-R-OW
LHCP	Orange/White	NE-ICF-002-L-OW

See current pricing and order online. All variants and lead times are listed on the product page: https://nolle.engineering/product/iceconefeed-v2-1/

IceConeFeed v2 / v2.1 Radome

NE-ICF-010 · □□1ØØ

Radome replacement

Replacement radome for IceConeFeed v2 and v2.1

Printed in PETG, standard color is white.

The radome is also available in PETG transparent, note that the material is not fully translucent like glass but rather satined. With backlighting you can see the helix element inside.

Available variants

Color	SKU
Transparent	NE-ICF-010-TR
White	NE-ICF-010-WT

See current pricing and order online. All variants and lead times are listed on the product page: https://nolle.engineering/product/iceconefeed-v2-radome/

Helix Element (3.5 / 4 / 5 turns)

NE-ICF-020 · ▢▢1Ø0

Helix for IceConeFeed DIY version. 3.5, 4.0 or 5.5 turns 44mm diameter 28mm pitch

Helix for IceConeFeed DIY version.

- 3.5, 4.0 or 5.5 turns
- 44mm diameter
- 28mm pitch

Available variants

Helix turns	SKU
5	NE-ICF-020-5
4	NE-ICF-020-4
3.5	NE-ICF-020-3-5

See current pricing and order online. All variants and lead times are listed on the product page: https://nolle.engineering/product/helix-element/

IceConeFeed LNB Adapter Ring

NE-ICF-030 · □□10□□

Sizing ring that lets your LNB sit correctly inside the IceConeFeed throat. Compatibility list with common LNBs (Octagon Green, Diavolo, DX Patrol, OPTICUM, Golden Media, Megasat) below; some LNBs (Bullseye, Goobay, RemoteQTH) need no adapter.

Adapter ring to fit your LNB precisely to the IceConeFeed throat. Choose the size that matches your LNB diameter; for some LNBs no adapter is needed at all.

LNB compatibility

LNB model	Adapter size
Octagon Green	55×16mm
Diavolo	55×16mm
DX Patrol	55×10mm
OPTICUM LTP 04H	59×16mm
Golden Media	59×16mm
Megasat	53/57×16mm (conical)
Bullseye	no adapter needed
Goobay	no adapter needed
RemoteQTH	no adapter needed

If your LNB is not listed, please contact us with the LNB model and a photo — we either know the right size or can print a custom one.

Available variants

Adapter size	SKU
53/57×16mm	NE-ICF-030-53x16
59×16mm	NE-ICF-030-59x16
55×16mm	NE-ICF-030-55x16
55×10mm	NE-ICF-030-55x10

See current pricing and order online. All variants and lead times are listed on the product page: https://nolle.engineering/product/iceconefeed-lnb-adapter-ring/

IceConeFeed Customized

NE-ICF-040 · QO100 · SBAND

Built-to-order IceConeFeed v2.1 variant: customer specifies center frequency (2.2–2.5 GHz) and helix turn count (2–3.5). Hand-tuned and S11-measured at the requested frequency before shipping. Typical lead time 2–3 weeks.

What it does

The IceConeFeed Customized is a built-to-order variant of the IceConeFeed v2.1. We retune the helix and adjust the turn count to match your application — useful when the standard 2.4 GHz QO100 narrowband configuration does not fit, for example for S-band downlink experiments, drone-borne transmitter mock-ups, indoor-navigation testbeds, or wide-band amateur work outside the QO100 band.

Each unit is hand-built and tuned to your specified parameters. Typical lead time is two to three weeks from order placement.

Specifications

Parameter	Value
Center frequency	Customer-specified, 2200 MHz – 2500 MHz
Helix turns	Customer-specified, 2 – 3.5
Polarization	LHCP (default) — RHCP available on request
SWR @ tuned frequency	< 1.2
Connector	N-type (default) — SMA on request
Material	PETG, UV-resistant
Color	Orange/White (default), Custom on request
Assembly	Fully assembled and tuned at our facility

How to order

After purchase we will get in touch to confirm the exact center frequency (between 2200 MHz and 2500 MHz) and helix turn count (between 2 and 3.5 turns). Once these are agreed we build, tune, and measure the unit before shipping.

Quality control & test campaign

Every unit is tuned to spec before it ships. The acceptance step is an S_{11} / SWR measurement at the customer-specified center frequency — units only leave the bench once they meet the published tolerance.

For research-grade applications you can pick the Full radiation pattern measurement variant on this page: the unit is run through our Antenna Test Facility before shipping and arrives with a measurement report covering the full 3D radiation pattern, gain, axial ratio, half-power beamwidth, and an S_{21} sweep across the band. Same measurement campaign as the standalone Radiation Pattern Measurement Add-On, just bundled with the unit.

Reference project

For an example of a customised IceConeFeed in the field, see the Lab post “Drone as Satellite: Custom S-Band IceConeFeed for ESA Indoor Navigation Research” — a 2.49 GHz variant flown under an industrial hexacopter to simulate a low-orbit satellite for an ESA-funded indoor navigation testbed.

Typical use cases

- S-band research telemetry, LEO emulation, indoor navigation testbeds
- Drone-borne transmitter mock-ups
- Wide-band amateur experiments outside QO100 narrowband
- Educational projects that need a specific center frequency

Available variants

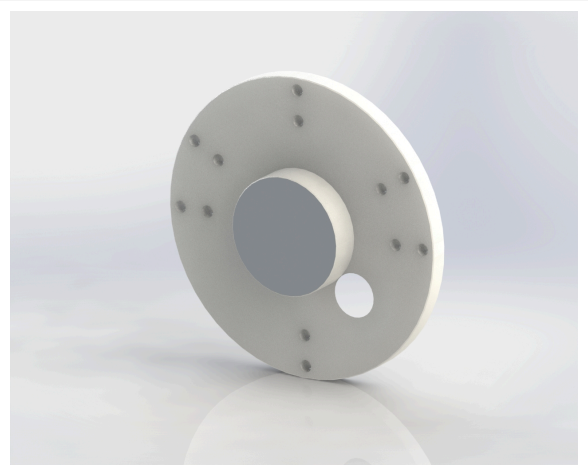
Test campaign	SKU
Full radiation pattern measurement	`NE-ICF-040-ATF`
Standard QC	`NE-ICF-040-QC`

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/iceconefeed-customized/`

IceConeFeed Prime Focus Adapter

NE-ICF-050 · ☐☐1⌀⌀

IceConeFeed Prime Focus Adapter



Custom adapter for prime focus dish mounting.

Printed in white PETG, aluminum reflector.

Note: This adapter is for RX only, there is no LNB opening.

Typical use cases

- LEO satellite tracking in S-Band — pair the Prime Focus Adapter with a customised IceConeFeed tuned to your downlink band (2.2–2.5 GHz) for static or motor-tracked reception of low-orbit satellites.
- Prime-focus reflector experiments with IceConeFeed v2 / v2.1.
- Dish-feed configurations not supported by the standard offset-LNB clip-on geometry.

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/iceconefeed-prime-focus-adapter/`

IceConeFeed TX Mount Stub

NE-ICF-060 · ☐☐1⌀⌀

Dummy-LNB mount stub — lets the IceConeFeed work as a standalone 2.4 GHz TX feed (e.g. dual-dish QO-100 setups). The 40 mm LNB-style neck fits standard offset-dish LNB holders; clamps to the 61 mm IceConeFeed throat. 3D-printed PETG.

Dummy-LNB mount for running the IceConeFeed as a standalone 2.4 GHz transmit feed — for example in a dual-dish QO-100 station, where the receive LNB sits on its own dish and the IceConeFeed handles only the 2.4 GHz uplink on a second dish.

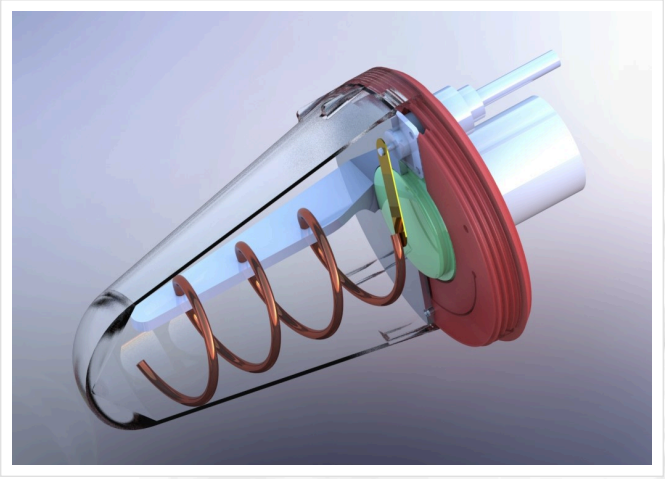
The stub gives the feed a standard 40 mm LNB-style neck, so it seats in any common offset-dish LNB holder, and clamps to the 61 mm IceConeFeed throat. 3D-printed PETG, UV-resistant. Mechanical mount only — there is no LNB and no receive path in this part.

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/iceconefeed-tx-mount-stub/`

Ice Cone Feed DIY Version (STL Files)

NE-ICF-063 · □□1Ø□

Open-source STL files for the original IceConeFeed v1 design. Print, wind a copper helix, tune to 2.4 GHz. Full build guide included. Free for private amateur radio use under CC BY-NC-ND; commercial use requires a separate license.



What it does

The IceConeFeed DIY version is the open-source roots of our QO100 dual-feed product line. Download the STL files, 3D-print the structural parts in PETG, wind the helix from 3.5 mm copper wire, and tune to 2.4 GHz. Suitable for offset dishes 65–80 cm with LNBs up to 61 mm diameter.

What you get

- STL files for the radome, base ring, helix support, reflector cup
- PDF build guide with helix winding template, tuning procedure, photographs
- License for private (non-commercial) amateur radio use

Specifications (target)

Parameter	Value
Operating frequency (TX)	2400 MHz
Polarization	LHCP (RHCP version achievable by mirroring helix winding)
SWR @ 2.4 GHz (typical, well-tuned build)	< 1.1
Helix turns	3.5
Wire diameter	3.5 mm

Connector	N-type
Material	PETG (recommended), UV-resistant
Print time (typical)	14 h on a standard FDM printer

Build documentation

- Build Instructions — full step-by-step
- IceConeFeed Installation Tips — Lab post on real-world tuning
- Hail Storm Damage — example of a long-running deployment

Reviews & demos

- Tech Minds — 2.4 GHz Dual Feed Helix Antenna For QO100 (DIY build, YouTube)
- LA9XGA — Norwegian ham, first QO-100 SSB contact using the DIY build
- Thingiverse mirror — alternative download with maker-community comments
- AMSAT-DL Forum — community thread on dish compatibility

Field reports

- @YT2CQ — helix mold printing project

License

Creative Commons BY-NC-ND 4.0. Free for private amateur radio use. Commercial use requires a separate license — see the Single Commercial License in the shop.

Need it ready-built?

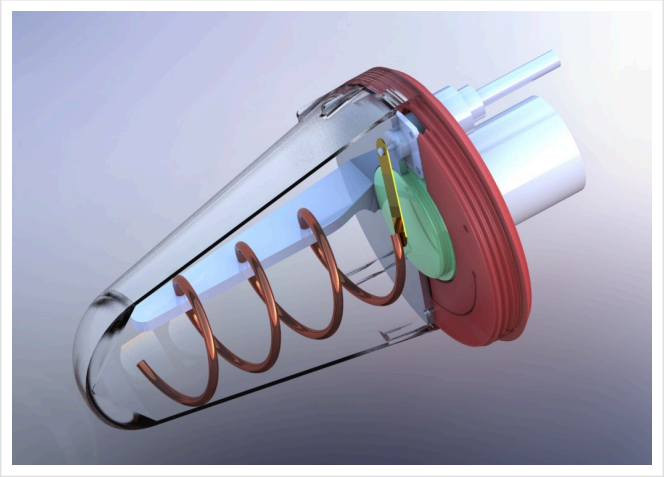
If you'd rather skip the build, the assembled and tuned versions are IceConeFeed v2 and v2.1.

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/ice-cone-feed-diy-version-stl-files/`

Ice Cone Feed Single Commercial License

NE-ICF-070 · ▢▢1⌀⌀

Per-unit commercial license for the IceConeFeed DIY design. Required if you sell, rent, or otherwise monetise builds of the open-source files. One license = one assembled unit; for batch licensing or OEM use please contact us.



What this is

The IceConeFeed DIY files are released under CC BY-NC-ND 4.0 — free for private amateur radio use, but commercial use requires explicit licensing. This product is a single-unit commercial license: it covers exactly one assembled and sold unit built from our open files.

What's covered

- Right to manufacture and sell one assembled unit derived from the IceConeFeed DIY STL files
- Right to publish marketing material identifying the design as IceConeFeed-derived
- Email confirmation receipt with a unique license number you can reference in your invoice / product sheet

What's not covered

- Removing or replacing the "IceConeFeed" name on the product or in marketing
- Modifying the design and re-licensing the modification (NoDerivatives clause of the underlying CC license still applies)
- Bulk / OEM use — for series production or rebranded versions please contact us for a custom agreement

How to use it

1. Buy one license per unit you intend to sell
2. Quote the license number on your invoice / product sheet
3. If audited, the license number is verifiable against our records

The DIY files themselves are downloadable from IceConeFeed DIY (STL files).

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/ice-cone-feed-diy-commercial-license/`

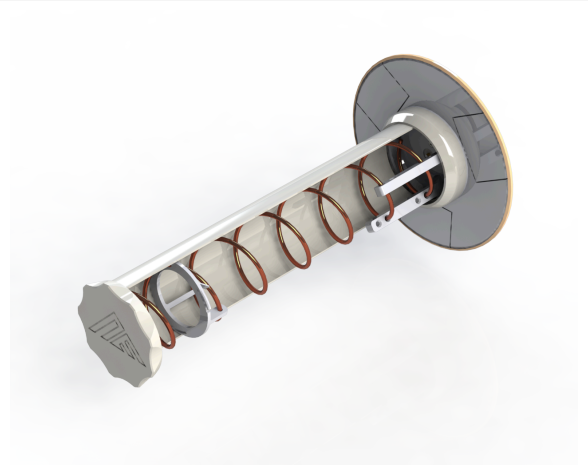
L-Band antennas

Directional helix antennas for the lower L-band: GNSS L2/L5, the H1 hydrogen line at 1420 MHz, Inmarsat at 1525 MHz, and weather-satellite HRPT at 1700 MHz. Plus the mounting hardware — cross clamps, elevation clamps, electronics covers, tripod adapters — you need to put them on a dish or pole.

L-Band Inmarsat 1525 MHz

NE-LBN-001 · LBAND

3D-printed L-band helix for Inmarsat reception (1525 MHz). Available as a 3-turn LHCP for offset-dish use or a 10-turn RHCP for direct reception with rotor — pick form factor + polarization at checkout. Original tuning, measured against Inmarsat-3 / Inmarsat-4 (Alphasat) downlinks.



What it does

A 3D-printed helix antenna tuned to the 1525–1559 MHz Inmarsat downlink band. Two form factors selectable at checkout:

- 3 turns, LHCP (default) — designed as a feed for an offset satellite dish (50–80 cm). Mounts in the LNB position via the Electronics Cover accessory (sold separately), which provides the standard 40 mm clamp interface that fits common TV-SAT LNB holders. Best for stationary GEO reception of Inmarsat-3 / Inmarsat-4.
- 10 turns, RHCP (default) — direct reception on an el/az rotor, no dish needed. Higher gain on low-elevation GEOs and suitable for both GEO and LEO satellites.

Both variants share the same connector (N-type) and PETG construction. Polarization can be flipped on either form factor (LHCP ↔ RHCP) at extra cost.

Specifications

Parameter	3-turn (offset dish)	10-turn (direct)
Center frequency	1525 MHz	1525 MHz
Polarization (default)	LHCP	RHCP
Helix turns	3	10
Wire diameter	3.5 mm	3.5 mm

Connector	N-type	N-type
Length × Ø	186 × 180 mm	521 × 180 mm
Weight	289 g	650 g
Mount	40 mm LNB clamp via Electronics Cover (sold separately)	6 × M4 bolts (universal)
Material	PETG, UV-resistant	PETG, UV-resistant

Measured performance

Live demonstration on the Inmarsat L-Band WebSDR — receiving Inmarsat-4 (Alphasat) 25°E and Inmarsat-3 F5 54°W from grid square JN58UA using the 7-turn and 10-turn variants in production today.

Polarization & dish use

The 3-turn variant is designed for use as a dish feed. A parabolic reflector inverts the circular polarization on each reflection, so a 3-turn feed should be the opposite handedness of the desired received signal — pick LHCP if you need to receive RHCP off the dish, and vice versa. The 10-turn variant is a standalone antenna with no dish, so feed polarization equals received signal polarization.

Typical use cases

- Inmarsat STD-C and AERO message decoding (with JAERO + RTL-SDR / Airspy + L-band LNA)
- Iridium telemetry monitoring
- Mobile LEO downlink experiments (10-turn on rotor)

Required for dish mounting (3-turn)

The 3-turn variant is a bare helix on an N-type baseplate — it does not include the 40 mm clamp body needed to drop it into a TV-SAT LNB holder. To mount on a dish arm you need the Electronics Cover accessory, which encloses the LNA and provides the 40 mm clamp interface. Order both together for a complete dish-feed assembly.

Compatible chain

- L-band LNA (+25 dB) — required since the antenna is passive
- SDR with at least 2 MHz bandwidth (RTL-SDR v3, Airspy Mini, or HackRF)
- Elevation clamp + Cross clamp for a 40 mm pipe build
- Electronics Cover — required for 3-turn dish-feed use (provides 40 mm LNB clamp body + LNA housing). Optional but recommended for the 10-turn standalone build.
- Tripod adapter for portable Manfrotto setup

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Color options

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The Color option applies to the 3D-printed parts only — the baseplate and rim. The radome pipe is always white, regardless of the Color choice.

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- Orange/White — orange baseplate and rim with the standard white radome pipe.
- Custom — custom color for the baseplate and rim. White is a valid choice; pick Custom if you want a uniform white antenna.

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Documented in the Lab

- L-Band Antenna Updates — design iteration notes
- L-Band WebSDR — public reception demo
- Design narrative — offset / prime focus / direct geometry comparison

Reviews & demos

- Tech Minds — L-Band Helix Antenna (3-turn LHCP with offset dish, YouTube)
- Tech Minds — High-Gain 10-Turn Helix For L-Band & Inmarsat (YouTube)
- RTL-SDR.com — Testing an Inmarsat L-Band Helix for Offset Satellite Dishes

Custom polarization or color combinations available on request — please use the contact form for a quote.

Available variants

Helix turns	Polarization	Color	SKU
10	LHCP	Custom color (contact us)	NE-LBN-001-10-L-CM
10	RHCP	Custom color (contact us)	NE-LBN-001-10-R-CM
10	LHCP	Orange/White	NE-LBN-001-10-L-OW
10	RHCP	Orange/White	NE-LBN-001-10-R-OW
3	RHCP	Custom color (contact us)	NE-LBN-001-3-R-CM
3	LHCP	Custom color (contact us)	NE-LBN-001-3-L-CM
3	RHCP	Orange/White	NE-LBN-001-3-R-OW
3	LHCP	Orange/White	NE-LBN-001-3-L-OW

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/l-band-antenna-rhcp/`

L-Band Inmarsat Bundle 1525 MHz (10-turn + accessories)

NE-LBN-002 · LBAND

Bundle consisting of L-band antenna and all mounting material to setup an L-band receiver station. Standard polarization is RHCP , but you can also select an LHCP version. Note: LNA and SDR are NOT included (available from 3rd party here)

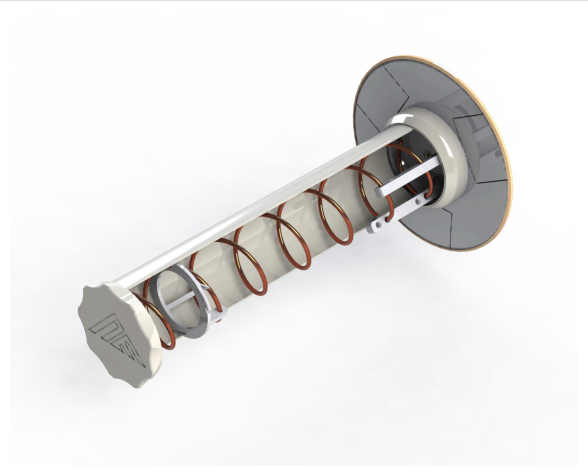
L-Band antenna ASSEMBLY INSTRUCTIONS

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/l-band-antenna-rhcp-bundle/`

L-Band H1 1420 MHz

NE-LBN-010 · LBAND

10-turn RHCP helix tuned to 1420 MHz, the neutral-hydrogen 21 cm radio-astronomy line. Direct reception, no dish needed. Suitable for amateur radio astronomy, mapping the galactic hydrogen distribution.



What it does

A 10-turn RHCP helix tuned to 1420 MHz, the rest frequency of the 21 cm neutral-hydrogen line. Used for amateur radio-astronomy work — observing galactic hydrogen distribution, tracking spiral-arm rotation curves, and building a personal H1 radio telescope without a parabolic dish.

Specifications

Parameter	Value
Center frequency	1420 MHz
Polarization	RHCP
Helix turns	10
Wire diameter	3.5 mm
Connector	N-type
Length × Ø	521 × 180 mm
Weight	650 g
Mount	6 × M4 bolts (universal) for el/az tracking
Material	PETG, UV-resistant
Color	Orange/White (default), Custom on request

Typical use cases

- Detection of the galactic 21 cm hydrogen line from the Milky Way disc

- Doppler-shift mapping of galactic-arm rotation
- Single-dish radio-astronomy education projects

Compatible chain

- Hydrogen-line LNA (e.g. SAWbird+ H1, 25 dB gain, integrated bandpass) — required, since the antenna is passive
- SDR with at least 2 MHz bandwidth (RTL-SDR v3 / Airspy Mini / HackRF)
- Outdoor / dark-sky site away from cellular and WiFi RFI
- SDR# / Gqrx / GNU Radio for capture; H-line specific software for averaging

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Color options

/wp:heading

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The Color option applies to the 3D-printed parts only — the baseplate and rim. The radome pipe is always white, regardless of the Color choice.

/wp:paragraph

wp:list

- Orange/White — orange baseplate and rim with the standard white radome pipe.
- Custom — custom color for the baseplate and rim. White is a valid choice; pick Custom if you want a uniform white antenna.

/wp:list

Documented in the Lab

- L-Band Helix Antenna for Radio Astronomy — A Practical Guide — full setup, results, RFI mitigation

Custom polarization or color combinations available on request — please use the contact form for a quote.

Available variants

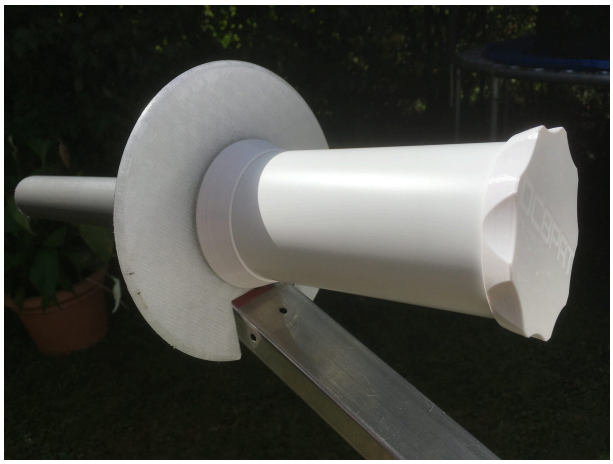
Color	SKU
Custom color (contact us)	`NE-LBN-010-R-CM`
Orange/White	`NE-LBN-010-R-OW`

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/l-band-antenna-h1/`

L-Band WX HRPT 1700 MHz

NE-LBN-020 · LBAND

10-turn RHCP helix tuned to 1700 MHz for direct reception of HRPT weather satellite downlinks (NOAA, MetOp). With an offset dish, the same tuning also receives Russian Elektro-L geostationary weather imagery — see the Lab WebSDR.



What it does

A 10-turn RHCP helix tuned to 1700 MHz. Decodes HRPT (High Resolution Picture Transmission) downlinks from NOAA POES and MetOp weather satellites in LEO when mounted on an el/az rotor. With an offset dish (3-turn front-end variant), the same tuning also receives the L3 downlink from Russian Elektro-L geostationary weather satellites — a deployment we run as a public WebSDR.

Specifications

Parameter	Value
Center frequency	1700 MHz (1690–1710 MHz HRPT band)
Polarization	RHCP (default) — LHCP available on request
Helix turns	10
Connector	N-type
Mount	6 × M4 bolts (universal) for el/az rotor; 40 mm LNB clamp adapter for dish use
Material	PETG, UV-resistant
Color	Orange/White (default), Custom on request

Live reception demo

The Lab WebSDR exposes live downlinks from this antenna. A separate WebSDR feed for Russian Elektro-L3 (geostationary, 76°E) using a 3-turn front-end on an offset dish is currently offline for maintenance — when restored it goes back into the same WebSDR multi-feed page.

Typical use cases

- NOAA-15/18/19 and MetOp-A/B/C HRPT decoding (with rotor tracking)
- Russian Elektro-L geostationary weather imagery (with offset dish)
- Spectrum monitoring 1690–1710 MHz

Compatible chain

Identical to the Inmarsat 10-turn — see L-Band Inmarsat 1525 MHz for LNA / SDR / mounting details.

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Color options

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wp:list

- Orange/White — orange baseplate and rim with the standard white radome pipe.
- Custom — custom color for the baseplate and rim. White is a valid choice; pick Custom if you want a uniform white antenna.

/wp:list

Documented in the Lab

- Lab overview — WebSDR feeds + station details
- L-Band Antenna Updates

Custom polarization or color combinations available on request — please use the contact form for a quote.

Available variants

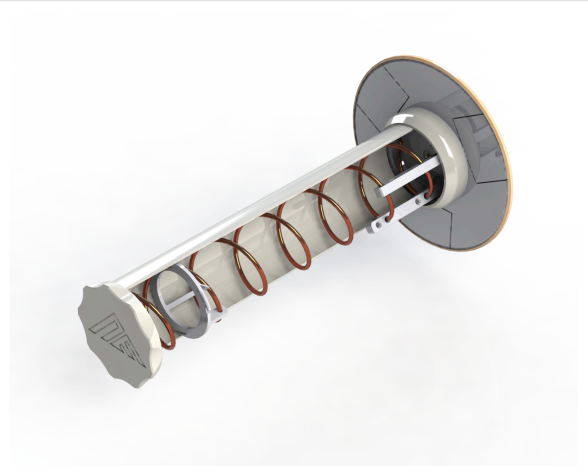
Polarization	Color	SKU
LHCP	Custom color (contact us)	`NE-LBN-020-L-CM`
RHCP	Custom color (contact us)	`NE-LBN-020-R-CM`
LHCP	Orange/White	`NE-LBN-020-L-OW`
RHCP	Orange/White	`NE-LBN-020-R-OW`

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/l-band-antenna-wx-hrpt/`

L-Band GPS L2/L5 1200 MHz

NE-LBN-030 · LBAND

10-turn RHCP helix tuned for GPS L2 (1227 MHz) / L5 (1176 MHz) bands. Direct reception, suitable for multi-band GNSS monitoring and indoor-navigation research applications.



What it does

A 10-turn RHCP helix tuned across the lower GNSS L-band — covering GPS L5 at 1176.45 MHz and GPS L2 at 1227.6 MHz. Suitable for civilian dual-frequency GPS monitoring, GNSS interference research, and indoor-navigation testbeds where a directional helix is preferred over a patch.

Specifications

Parameter	Value
Center frequency	1200 MHz (covers L5 1176 MHz + L2 1227 MHz)
Polarization	RHCP (default) — LHCP available on request
Helix turns	10
Connector	N-type
Mount	6 × M4 bolts (universal)
Material	PETG, UV-resistant
Color	Orange/White (default), Custom on request

Typical use cases

- Multi-band GNSS receiver testing (GPS L2 + L5)
- GNSS interference research
- Indoor-navigation testbeds where a directional element is preferred over a patch

Compatible chain

Identical mounting + LNA / SDR pattern to the Inmarsat 10-turn — see L-Band Inmarsat 1525 MHz.

Custom polarization or color combinations available on request — please use the contact form for a quote.

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Color options

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wp:list

- Orange/White — orange baseplate and rim with the standard white radome pipe.
- Custom — custom color for the baseplate and rim. White is a valid choice; pick Custom if you want a uniform white antenna.

/wp:list

Available variants

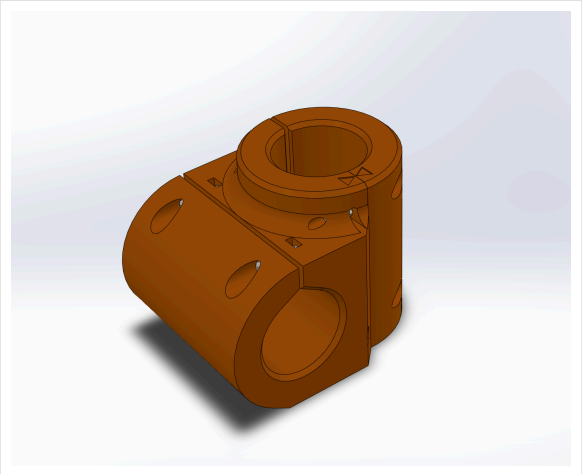
Polarization	Color	SKU
LHCP	Custom color (contact us)	NE-LBN-030-L-CM
RHCP	Custom color (contact us)	NE-LBN-030-R-CM
LHCP	Orange/White	NE-LBN-030-L-OW
RHCP	Orange/White	NE-LBN-030-R-OW

See current pricing and order online. All variants and lead times are listed on the product page: https://nolle.engineering/product/l-band-antenna-l2-l5-lhcp/

Cross clamp

NE-LBN-101 · LBAND

Cross clamp for mounting 40mm pipes.



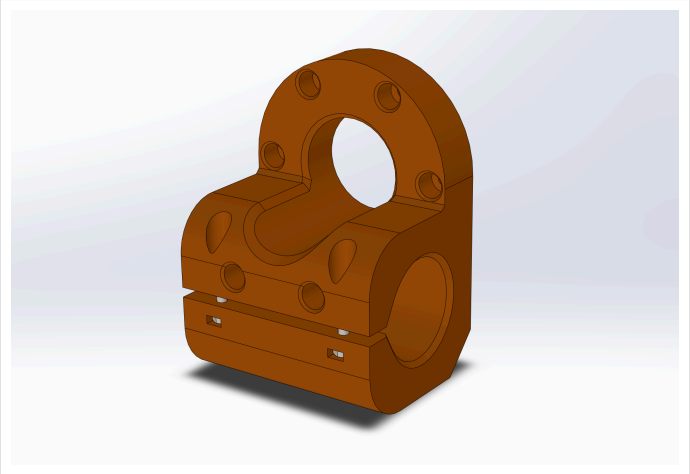
Parameter	Value
Brand	Nolle Engineering
Weight	0.2 kg
Dimensions (L×W×H)	18 × 12 × 12 mm

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/crossclamp/`

Elevation clamp

NE-LBN-102 · LBAND

Elevation clamp to mount L-Band RHCP antenna to 40mm pipe and adjust antenna elevation angle.



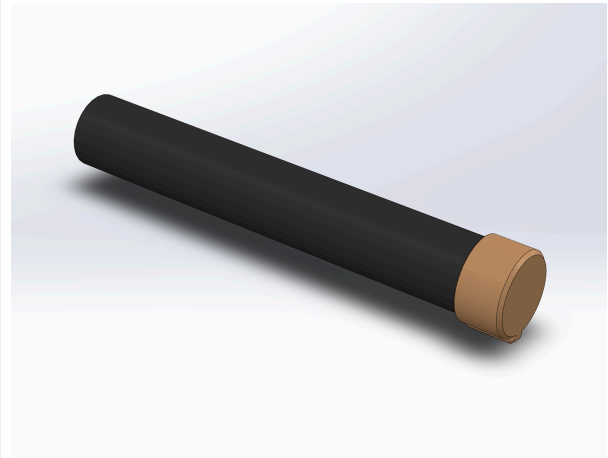
Parameter	Value
Brand	Nolle Engineering
Weight	0.2 kg
Dimensions (L×W×H)	18 × 12 × 12 mm

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/elevation_clamp/`

Electronics Cover

NE-LBN-103 · LBAND

40mm x 250mm pipe + end cap to cover LNA and SDR assembly. The 3D printed end cap features a guide for USB cables



Parameter	Value
Brand	Nolle Engineering
Weight	0.2 kg
Dimensions (L×W×H)	25 × 5 × 5 mm

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/electronics_cover/`

Tripod mount adapter

NE-LBN-104 · LBAND

Adapter to mount L-Band antenna to a standard Manfrotto 501PL type tripod mount. 1/4″ UNC nut included.

Parameter	Value
Brand	Nolle Engineering
Weight	0.2 kg
Dimensions (L×W×H)	10 × 12 × 10 mm

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/tripod_mount/`

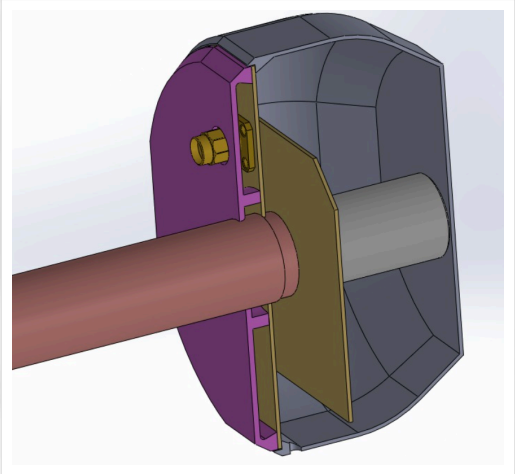
POTY housings

POTY-style dual-feed housings for QO100 — RX/TX in a single 3D-printed body. Tuned and SWR-checked per unit.

POTY Housing

NE-POT-001 · QO100

3D-printed two-part housing (radome + back cap) for the standard QO100 POTY feed — choose SMA or Type-N socket variant.



3D-printed two-part housing (radome + back cap) for the standard QO100 POTY feed. Available with either an SMA or Type-N socket — pick your variant above.

Compatible with POTY feeds matching the following dimensions:

Available variants

Connector	SKU
Type N	NE-POT-001-N
SMA	NE-POT-001-S

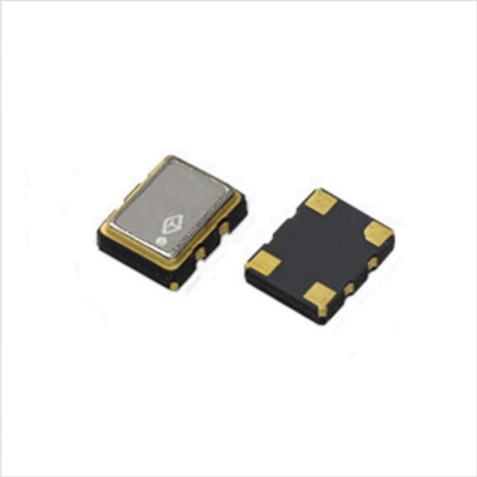
See current pricing and order online. All variants and lead times are listed on the product page: https://nolle.engineering/product/poty-housing/

Electronics

TCXOs and small electronics that complement the antenna line.
Specs and compatibility on each product page.

TCXO 40MHz

NE-ELC-001 · □□100



TCXO for Adalm pluto modification

Taitien TXETBLSANF-40.000000

Digi-Key Part Number: 1664-1270

Datasheet

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/tcxo-40mhz/`

RF connectors

Adapters and right-angle elbows we keep in stock to round out an order: SMA, SMA-RP, F-type, N-type. No third-party stickers — brand-named parts only when listed.

SMA Adapter

NE-CON-001 · LBAND · 00100

Compact RF adapter between SMA jack and N plug — for connecting SMA-equipped equipment to N-type feedlines on the IceConeFeed.

Adapter between SMA jack and N plug. Used to connect SMA-equipped equipment to N-type cabling — typical use case is bringing the IceConeFeed's N-type feedline into an SMA-equipped LNA or SDR.

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/sma-adapter/`

SMA-RP to Type N Adapter

NE-CON-002 · ☐☐1⌀⌀

RF adapter from SMA-RP (reverse polarity) jack to N plug — bridges WiFi-style SMA-RP cabling to N-type feedlines.

Adapter from SMA jack (reverse polarity) to N plug.

Note: the SMA side is REVERSE POLARITY.

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/sma-rp-to-type-n-adapter/`

SMA to F-Type Adapter

NE-CON-003 · □□1Ø2Ø

RF adapter from SMA to F-type plug — bridges SMA-equipped LNAs and SDRs to standard satellite-dish F-type cabling.

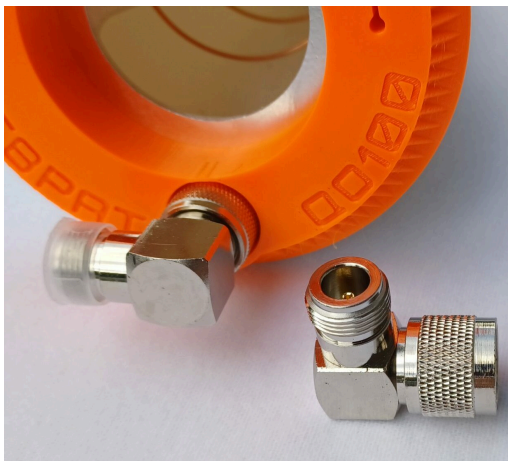
Adapter from SMA to F-type plug. Useful for connecting SMA-equipped LNAs or SDRs to standard satellite-dish F-type cabling.

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/sma-nach-f-adapter/`

Type N 90° Elbow

NE-CON-004 · □□1Ø□

Type N 90° angle adapter (male/female) — for tight-clearance antenna mounts where a straight feed line would foul the dish or mast.



Type N 90° angle adapter (male / female). Useful when a straight feed line would foul the dish or mast — keeps the cable run clean against tight-clearance mounts. Suitable for the IceConeFeed.

See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/type-n-90-elbow/`

LNBs

Low-noise blocks selected to pair with our feeds. Tested against the IceConeFeed in-house before they go on the shelf.

LNB Golden Media 202

NE-LNB-001 · □□1Ø□

LNB compatible with the IceConeFeed v2

This LNB can be modified to accept an external reference, see here:
Golden Media 202 Modification for external LO

The product gallery shows LNB internals, different GM202 versions are shown.

Universal Twin LNB 202		
Input Frequency Range	10,7 – 11,7 GHz / 11,7 – 12,75 GHz	
Output Frequency Range	950 – 1950 MHz / 1100 – 2150 MHz	
LO Frequency	10,6 GHz	
Noise Figure	0,1 dB (Typ.)	
Power Consumption max.	200 mA	
Conversion Gain	55 – 65 dB	
Operation Temperature	• 30°C - + 60°C	
Connection	F-Type	

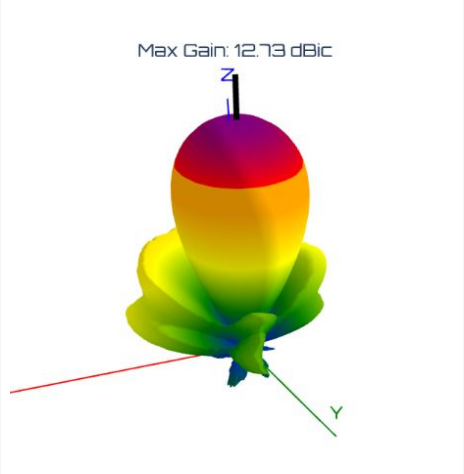
See current pricing and order online. All variants and lead times are listed on the product page:
`https://nolle.engineering/product/lnb-golden-media-202/`

Services

Add-ons available alongside an antenna order — most notably the radiation-pattern measurement at the Antenna Test Facility.

Radiation Pattern Measurement Add-On

NE-SVC-001 · LBAND



This service comprises an individual radiation pattern measurement on any of our inhouse antenna products.

- Full 3D antenna measurement, 10k points, equally spherically distributed
- S21 raw measurement across frequency range, 101 measurement points
- Test report contains, isotropic antenna gain, axial ratio, max gain and half power beam width across frequency range
- Interactive HTML report

Click here for a sample test report →

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For full details on measurement setup and what to expect: see the Antenna Test Facility page. Note: this service is currently only available for nolle.engineering antenna products.

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See current pricing and order online. All variants and lead times are listed on the product page: `https://nolle.engineering/product/radiation-pattern-measurement-add-on/`

CONTACT

Nolle Engineering GmbH
Angerstr. 31, 85635 Höhenkirchen-Siegertsbrunn, Germany

E-mail: info@nolle.engineering
Web: https://nolle.engineering

Pricing and lead times are kept current on the website. EU customers see VAT-inclusive prices in EUR; non-EU customers see net prices. All prices exclude shipping.

Generated 2026-06-24.

ANNEX — PART-NUMBER REFERENCE

Part-number format

Codes use the format NE-LLL-NNN[-VARIANT] where LLL is the product line, NNN the product within that line, and the optional variant suffix encodes attributes such as polarization, color, helix turns, or adapter size.

The NE prefix distinguishes new codes from the legacy 6-digit numeric SKUs that ran from 2020 to early 2026.

Variant attribute codes

Attribute	Codes
Polarization	`L = LHCP · R = RHCP`
Color	`OW = Orange/White · CM = Custom · WT = White · TR = Transparent`
Helix turns	`3 · 3-5 · 4 · 5 · 7 · 10`
Adapter size	`55x10 · 55x16 · 59x16 · 53x16`

When multiple attributes apply, ordering is helix-turns → polarization → color → adapter-size, dash-separated. Example: NE-LBN-001-10-R-CM = L-Band Inmarsat, 10-turn, RHCP, Custom color.

Catalogue listing

Every active product, by line. Click any code or name to open the live product page on nolle.engineering.

NE-ICF · IceConeFeed

NE-ICF-001	IceConeFeed v2
NE-ICF-002	IceConeFeed v2.1
NE-ICF-010	IceConeFeed v2 / v2.1 Radome
NE-ICF-020	Helix Element (3.5 / 4 / 5 turns)
NE-ICF-030	IceConeFeed LNB Adapter Ring
NE-ICF-040	IceConeFeed Customized
NE-ICF-050	IceConeFeed Prime Focus Adapter
NE-ICF-060	IceConeFeed TX Mount Stub
NE-ICF-063	Ice Cone Feed DIY Version (STL Files)
NE-ICF-070	Ice Cone Feed Single Commercial License
NE-ICF-051	IceConeFeed Prime Focus Custom (private)

NE-LBN · L-Band antennas

NE-LBN-001	L-Band Inmarsat 1525 MHz
NE-LBN-002	L-Band Inmarsat Bundle 1525 MHz (10-turn + accessories)
NE-LBN-010	L-Band H1 1420 MHz
NE-LBN-020	L-Band WX HRPT 1700 MHz
NE-LBN-030	L-Band GPS L2/L5 1200 MHz
NE-LBN-101	Cross clamp
NE-LBN-102	Elevation clamp
NE-LBN-103	Electronics Cover
NE-LBN-104	Tripod mount adapter

NE-POT · POTY housings

NE-POT-001	POTY Housing

NE-ELC · Electronics

NE-ELC-001	TCXO 40MHz

NE-CON · RF connectors

NE-CON-001	SMA Adapter
NE-CON-002	SMA-RP to Type N Adapter
NE-CON-003	SMA to F-Type Adapter
NE-CON-004	Type N 90° Elbow

NE-LNB · LNBs

NE-LNB-001	LNB Golden Media 202

NE-SVC · Services

NE-SVC-001	Radiation Pattern Measurement Add-On

Looking up an old code

Pre-2026 invoices and product sheets used a 6-digit numeric format (e.g. 121200). The NE- prefix is the canonical code going forward — old codes remain on historical records as immutable references. Mail us if you need to map an old number.