

Inline Amplifier (INA)

Product Highlights

- | Flawless coverage of all GNSS bands
- | Excellent typical noise figure (NF) of 0.8 dB
- | Gain (G) of 20 dB (INA-20) or 30 dB (INA-30)
- | IP68, REACH, RoHS-compliant
- | EN 45545-2, EN 50121, EN 50155, and EN 61373 compliant
- | Integrated surge protection
- | GND clamp available
- | Consistent performance from 3.6 VDC – 5.5 VDC
- | Precision type-N connectors



High-Performance Inline Amplifier for Multi-Band GNSS Antennas

The Meinberg inline amplifiers “INA-20” and “INA-30” are high-performance accessories for the Meinberg GNMANTv2 antenna, specifically designed to maximize the signal strength and quality of your GNSS applications. With its outstanding typical noise figure (F) of 0.8 dB and two variants available providing 20 dB and 30 dB gain respectively, these amplifiers offer reliable and precise signal amplification for all GNSS bands in different application scenarios. With its integrated overvoltage protection, the Meinberg inline amplifier protects downstream electronics from overvoltage scenarios and prolongs the life of your antenna installation and connected devices.

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Physical Specifications

Housing	Nickel-plated brass
Product Weight (Unit Only)	213 g (7.5 oz)
Product Weight	273 g (9.6 oz)

Connection

Connector Type	Type-N, female
Nominal Impedance	50 Ω

Electrical Specifications

The specifications listed apply equally to the INA-20 and INA-30 amplifiers.

Frequency Range	1164 MHz - 1615 MHz
Input Voltage	3.6 V DC – 5.5 V DC
Current Draw (Typical)	8 mA @ 5 V
Bypass Current Rating (Maximum)	100 mA

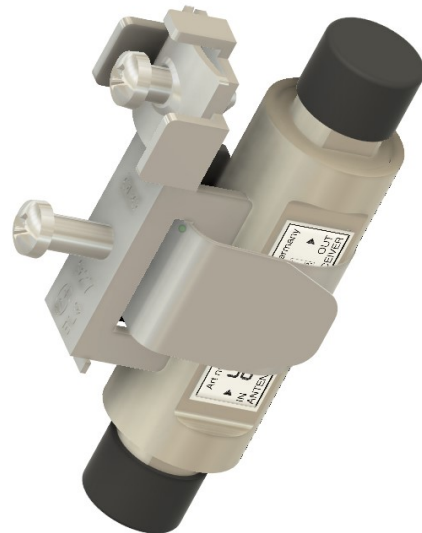
Signal Properties

Unless otherwise specified, the specifications listed apply equally to the INA-20 and INA-30 amplifiers.

Gain	INA-20 (20 dB) INA-30 (30 dB)
Input / Output Return Loss	> 10 dB
Output Compression Point	11 dBm
Noise Figure	Typical: 0.8 dB Maximum: 1.1 dB
Delay	1176.45 MHz: 2.44 ns 1227.6 MHz: 2.67 ns 1575.42 MHz: 1.94 ns
Group Delay Ripple in GNSS Bands	< 0.1 ns

Accessories Included

- Stainless steel grounding assembly for amplifier unit
- 200 mm (7.9") flexible strap for amplifier body circumference
- Max. two grounding cables 2.5 mm² – 25 mm² (0.1" – 1")

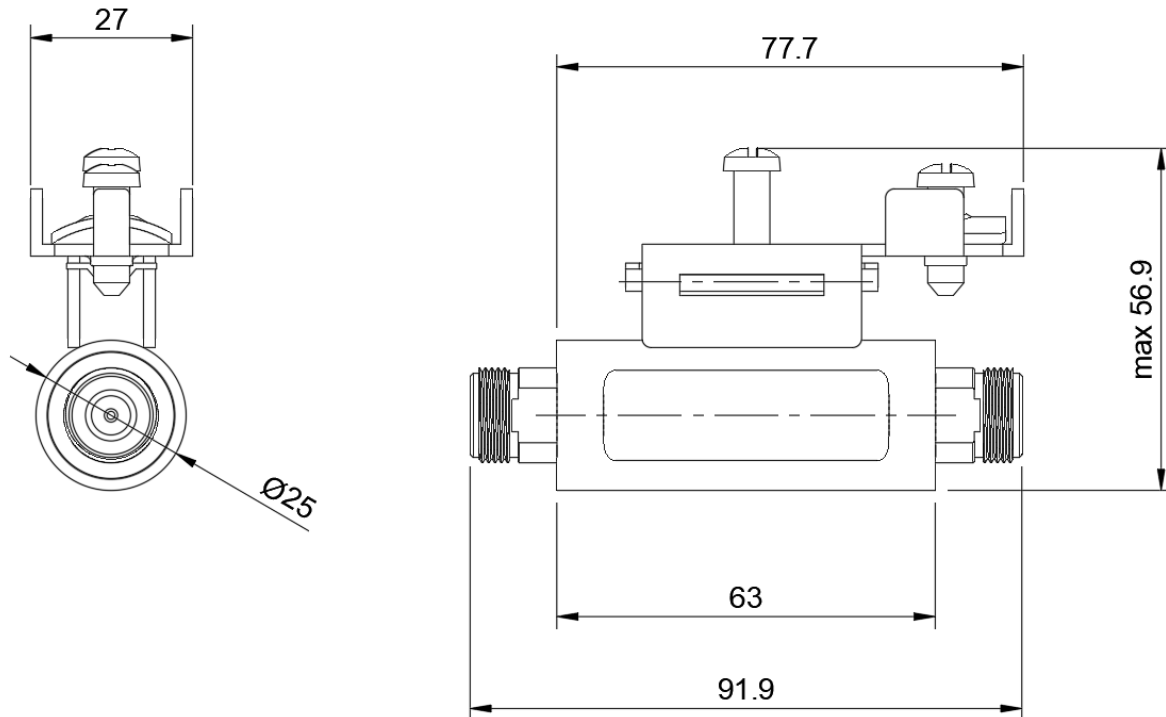


Environmental Conditions

Recommendations for continuous operation.

Supported Temperature Range (Operation)	-70 °C to 85 °C (-94 °F to 185 °F)
Supported Temperature Range (Storage)	-70 °C to 95 °C (-94 °F to 203 °F)
Relative Humidity (Operation)	Max. 95 % at 40 °C (104 °F), non-condensing
IP Rating	IP65

Dimensions



Type Tests

Environmental Tests

Tests have been performed in accordance with IEC 61850-3 with reference to the following standards:

IEC 60068-2-1	Cold	-70 °C (-94 °F), 16 h
IEC 60068-2-2	Dry heat	85 °C (185 °F), 16 h
IEC 60068-2-14	Change of temperature	-70 to 85 °C (-94 to 185 °F), 6 cycles, 3 °C (37,4 °F)/min
IEC 60068-2-30	Damp heat, cyclic (12 h + 12 h)	55 °C (131 °F), 97 % RH, 6 cycles
IEC 60068-2-78	Damp heat, steady state	40 °C (104 °F), 93 % RH, 240 h
IEC 60255-21-1	Vibration (sinusoidal) ¹ Class 2	10–150 Hz, 1 g _n , 2 sweeps, 3 axes 10–150 Hz, 2 g _n , 40 sweeps, 3 axes
IEC 60255-21-2	Shock ¹ Class 2	10 g _n , 11 ms, ±3 shocks, 3 axes 30 g _n , 11 ms, ±3 shocks, 3 axes 20 g _n , 16 ms, ±1000 shocks, 3 axes
IEC 60255-21-3	Seismic ^{1,2} Class 2	4-35 Hz, 1 g _n , 1 sweep, hor. axes 4-35 Hz, 2 g _n , 1 sweep, ver. axis

¹ In order to withstand the tests for vibration, shock and seismic, special mounting brackets are optionally available.

² The frequency range deviates from the values required by the standard. In this test, a frequency range of 4-35 Hz instead of 1-35 Hz was used.

Electromagnetic Compatibility – Emissions

CISPR 16-1-2 and CISPR 16-2-1	Conducted disturbance voltage measurements
CISPR 16-2-3	Radiated radio disturbance
CISPR 32	Conducted disturbance current measurements
FCC 47 CFR Part 15 section 15.107 (b) [3] RSS-Gen Issue 4 section 8.8 [4]	Conducted emission
FCC 47 CFR Part 15 section 15.109 (b) [3] RSS-Gen Issue 4 section 8.9 [4]	Radiated emission
ETSI EN 303 413	Standard for GNSS receiver

Electromagnetic Compatibility – Immunity

Tests have been performed in accordance with IEC 61000-6-5 and IEC 61850-3 with reference to the following standards:

IEC 61000-4-2	Immunity test to electrostatic discharges (Level 4)	±8 kV contact discharge ±15 kV air discharge
IEC 61000-4-3	Immunity test to radiated, radio-frequency, electromagnetic fields	10 V/m
IEC 61000-4-4	Immunity test to electrical fast transients (Burst)	±4 kV, 100 kHz
IEC 61000-4-5	Immunity test to surges	Up to ±4 kV line to earth
IEC 61000-4-6	Immunity test to conducted disturbances, induced by radio-frequency fields	10 V

Compliance

ISO 9001	The product is developed and manufactured in compliance with all relevant quality standards, which are defined by an ISO 9001-certified quality management system.
CE	The product has the CE mark and fulfils the basic requirements of the EU directives regarding safety, health and environmental protection, which confirms its conformity with European standards.
UKCA	The product has the UKCA (UK Conformity Assessed) mark and therefore meets the requirements of UK health and safety regulations, confirming its compliance with UK standards post-Brexit.
RoHS	The device complies with the requirements of the EU RoHS (Restriction of Hazardous Substances) Directive and is free from harmful substances such as lead, mercury, cadmium and other hazardous chemicals.
REACH	The product fulfills the requirements of the EU REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals) and does not contain any substances that violate this regulation.
WEEE Status	The purchase of this product is considered to be a “B2B” transaction (non-household product) for the purposes of the EU Waste of Electrical and Electronic Equipment Directive; the product falls under Category 6, “Small IT and Telecommunications Equipment”. For disposal, it can be returned to the manufacturer to ensure WEEE compliance. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will cover the costs for the waste disposal itself.

Support & Warranty

Technical Support	Free lifetime support via telephone and email, including firmware updates
Warranty	Three-year warranty, extendable upon request