

Frequency Downconverter

DrawCom Supplies *Novella SatComs* frequency downconverters which are based on an L-band to VHF (70 or 140MHz) module built on a single PCB. The latest frequency synthesis techniques and surface mount components are used to achieve wide coverage, frequency agility, very low phase noise and level of spurious. These modules may be packaged on their own, as L-Band downconverters, or together with SHF to L-band Block Downconverters (BDCs) as C, X or Ku-band downconverters.

L-band coverage of this card may be 950 to 1,750MHz or 950 to 2,150MHz. The standard coverage card is used for standard L, C, X or Ku-band downconverters. The extended coverage card may be used in conjunction with dual-band or extended coverage LNBS, or with two or more Ku to L-band block converters to make extended coverage Ku-band converters, or as a test loop translator.

The L-band card is usually configured for 70 or 140MHz IF, optionally both, selectable locally or remotely. Other IFs are possible, from 30 to around 700MHz. In addition it may be preset for spectrum preservation or spectrum inversion (from L-band to IF). Spectrum inversion is usually used with C-band and other spectrum invert LNBS or BDCs. If required and fitted, spectrum inversion is selectable via front panel menus or via the remote interface.

This versatile card may be modified to cope with input frequencies below L-band, from around 200MHz to 900MHz, or above L-band, namely S-band from around 2GHz to 2.8GHz.

Two L-band downconverters, or a downconverter plus an upconverter may be assembled in a single IU chassis, with independent controls of gain and frequency.

All downconverters are fitted with an RS485/422 and RS232 remote interface, selectable from front panel menus. The various available serial communication protocols offer 100% compatibility with most industry standard and/or other manufacturers' protocols.

DrawCom supplies a range of L-band and SHF downconverters, usually X-band, with simultaneous VHF and UHF outputs, $70 \pm 20\text{MHz}$ or $140 \pm 40\text{MHz}$, and $750 \pm 250\text{MHz}$. Some specialist X-band downconverters provide agile downconversion to $720 \pm 300\text{MHz}$ or similar, with 1MHz step.

In addition DrawCom supplies multi-band frequency downconverters with all combinations of C, X or Ku-band downlink segments.

All downconverters may be packaged in standard IU 19" rack mountable chassis, or in outdoor IP67 ruggedised enclosures certified to defense standards for EMC (Mil. Std. 461) and shock and vibration (Mil. Std. 810). Applications include fixed and tactical ground stations.

A key consideration is reliability. Novella's production techniques and high level of circuit integration is reflected in a standard warranty period of 36 months which may be extended to 5 years for a nominal fee. All products are stressed for a minimum of 24 hours at 50°C and 12 hours at -25°C and must be fully functional at the end of each cycle.

Frequency Downconverter (cont.)

Specialist Applications

Novella manufactures a wide range of COTS and bespoke frequency downconverters for TT&C (Telemetry Tracking & Control), Remote Sensing, Weather Forecasting, Earth Observation, Space Exploration, etc., at a variety of spectrum slots at S, X and Ka-bands, with standard IFs at 70MHz, 140MHz and 720MHz or other bespoke values in the VHF/UHF range.

Please consult DrawCom for a solution and a quotation.



Specifications: L band

Model	Input band, MHz	Output, MHz	Step size, kHz	Gain, dB
D350	950 to 1,750	70 ± 20	1	20 to 40
D351	950 to 1,750	70 ± 20	1	20 to 40
D355	950 to 1,750	140 ± 40	1	20 to 40
D356	950 to 2,150	140 ± 40	1	20 to 40
DD350	Dual D350 in 1U 520mm chassis, with independent frequency and gain controls		1	20 to 40
DD351	Dual D351 in 1U 520mm chassis, with independent frequency and gain controls		1	20 to 40
DD355	Dual D355 in 1U 520mm chassis, with independent frequency and gain controls		1	20 to 40
DD356	Dual D356 in 1U 520mm chassis, with independent frequency and gain controls		1	20 to 40
UD350	U350 plus D350 in 1U 520mm chassis, with independent frequency and gain controls		1	20 to 40
UD351	U351 plus D351 in 1U 520mm chassis, with independent frequency and gain controls		1	20 to 40
UD355	U355 plus D355 in 1U 520mm chassis, with independent frequency and gain controls		1	20 to 40
UD356	U356 plus D356 in 1U 520mm chassis, with independent frequency and gain controls		1	20 to 40
D370	950 to 1,750	70 ± 20 plus 140 ± 40	1	20 to 40
D371	950 to 1,750	70 ± 20 plus 140 ± 40	1	20 to 40
DD360	950 to 1,450	750 ± 250 plus 70 ± 20	Block conversion 1	20 to 40 20 to 40

All listed L-band downconverters are usually mounted in 1U 400mm chassis, or 520mm where shown. They can be assembled in outdoor IP67 ruggedised cases. Add suffix M to designate these outdoor models.

Frequency Downconverter (cont.)

Specifications: C band

Model	Input band, GHz	Output, MHz	Step size, kHz	Gain, dB
D550	3.625 to 4.2	70 ± 20	1	30 to 50
D551	3.4 to 4.2	70 ± 20	1	30 to 50
D555	3.625 to 4.2	140 ± 40	1	30 to 50
D556	3.4 to 4.2	140 ± 40	1	30 to 50
D570	3.625 to 4.2	70 ± 20 plus 140 ± 40	1	30 to 50
D571	3.4 to 4.2	70 ± 20 plus 140 ± 40	1	30 to 50

All listed C-band downconverters are usually mounted in 1U 400mm chassis. They can be assembled in outdoor IP67 ruggedised cases. Add suffix M to designate these outdoor models.

Specifications: X band

Model	Input band, GHz	Output, MHz	Step size, kHz	Gain, dB
D650	7.25 to 7.75	70 ± 20	1	30 to 50
D655	7.25 to 7.75	140 ± 40	1	30 to 50
D670	7.25 to 7.75	70 ± 20 plus 140 ± 40	1	30 to 50
D620	7.25 to 7.75	750 ± 250	Block conversion	30 to 50
DD660	7.25 to 7.75	750 ± 250 plus 70 ± 20	Block conversion 1	20 to 40 30 to 50

All listed X-band downconverters are usually mounted in 1U 400mm chassis. They can be assembled in outdoor IP67 ruggedised cases. Add suffix M to designate these outdoor models.

Specifications: Ku band

Model	Input band	Output, MHz	Step size	Gain
D750	10.95 to 11.7	70 ± 20	1	30 to 50
D751	11.7 to 12.25	70 ± 20	1	30 to 50
D752	12.25 to 12.75	70 ± 20	1	30 to 50
D753	10.7 to 12.75	70 ± 20	1	30 to 50
D754	10.7 to 11.7	70 ± 20	1	30 to 50
D755	10.95 to 11.7	140 ± 40	1	30 to 50
D756	11.7 to 12.25	140 ± 40	1	30 to 50
D757	12.25 to 12.75	140 ± 40	1	30 to 50
D758	10.7 to 12.75	140 ± 40	1	30 to 50
D759	10.7 to 11.7	140 ± 40	1	30 to 50
D770	10.95 to 11.7	70 ± 20 plus 140 ± 40	1	30 to 50
D771	11.7 to 12.25	70 ± 20 plus 140 ± 40	1	30 to 50
D772	12.25 to 12.75	70 ± 20 plus 140 ± 40	1	30 to 50
D773	10.7 to 12.75	70 ± 20 plus 140 ± 40	1	30 to 50
D774	10.7 to 11.7	70 ± 20 plus 140 ± 40	1	30 to 50

All listed Ku-band downconverters are usually mounted in 1U 400mm chassis; D773 500mm. They can be assembled in outdoor IP67 ruggedised cases. Add suffix M to designate these outdoor models.

Frequency Downconverter (cont.)

Specifications: X & Ka band

Model	Input band, GHz	Output, MHz	Step size, MHz	Gain, dB
D686	8.0 to 9.0 (*)	720 ± 20	1	30 to 50
D687	8.0 to 9.0 (*)	720 ± 40	1	30 to 50
D688	8.0 to 9.0 (*)	720 ± 200	1	30 to 50
D2586	25.0 to 26.0 (**)	720 ± 20	1	30 to 50
D2587	25.0 to 26.0 (**)	720 ± 40	1	30 to 50
D2588	25.0 to 26.0 (**)	720 ± 200	1	30 to 50

(*)Models may be supplied with input bandwidth restricted to any segment within 8 to 9GHz.

(**)Other input bands available between 18 and 30GHz, up to 1GHz wide.

All listed downconverters are usually mounted in 1U 400mm chassis.

All listed models may be assembled in outdoor IP67 ruggedised cases. Add suffix M to designate these outdoor models

Specifications: S band

Model	Input band, GHz	Output, MHz	Step size, kHz	Gain, dB
D492	2,000 to 2,400	70 ± 20	1	20 to 40
D495	2,000 to 2,400	140 ± 40	1	20 to 40
D497	2,000 to 2,400	70 ± 20 plus 140 ± 40	1	20 to 40

All listed S-band downconverters are usually mounted in 1U 400mm chassis.

All listed models may be assembled in outdoor IP67 ruggedised cases. Add suffix M to designate these outdoor models.