



**DATASHEET**



*Norden Millimeter is the leading developer of microwave and millimeter wave products, creating standard and custom RF amplifiers, frequency multipliers, frequency converters, and custom assemblies.*

## NUDC2-18 / 1.3-2.3 FEATURES

RF Frequencies  
**2-18 GHz**

IF Frequencies  
**1.3-2.3 GHz Internal LO Generation**

Gain Control  
**50 dB**

Gain Flatness  
**+/- 2.0 dB**

Operating Temperature  
**-40 to +85 deg C**

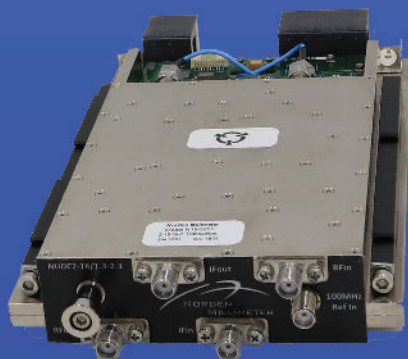
We developed a state of the art NUDC2-18/1.3-2.3 Wideband Microwave Transceiver in a low-SWaP 3U module. The NUDC2-18/1.3-2.3 is a dual conversion Transceiver providing 2-18 GHz operation in a versatile OpenVPX platform. The NUDC2-18/1.3-2.3 includes internal LOs which provide an instantaneous IF bandwidth of 1 GHz and exceptional Noise Figure.

- Down Converter NF = 6dB max
- Up Converter NF = 15dB max

Both the RF and IF paths include variable attenuation. The NUDC2-18/1.3-2.3 is digitally controlled by RS-485.

Norden's comprehensive line of products fulfills most applications in the 5G, test, and military markets. Norden Millimeter is also available for custom designed products. If you need a custom product, contact us at (530) 642-9123 for the design, development and manufacture of custom microwave products and subsystems.

We can provide custom designed and tested products with additional non-standard features and operation over the full military temperature range. Norden Millimeter is ISO 9001 and AS9100 Certified.



# NUDC2-18 / 1.3-2.3

2-18 GHZ TRANSCEIVER

3U OPENVPX

# SPECIFICATIONS

| Parameter                 | Min | Max  | Units | Notes   |
|---------------------------|-----|------|-------|---------|
| RF Frequency Range        | 2   | 18   | GHz   |         |
| IF Out/In Frequency       | 1.3 | 2.3  | GHz   |         |
| Tuning Step               |     | 100  | MHz   | Typical |
| DC Power (Input)          |     | 40   | Watts | Typical |
| Max RF Input Power        |     | 20   | dBm   |         |
| RF Out to RF In Isolation | 80  |      | dB    |         |
| Tuning Speed              |     | < 20 | uS    |         |

## Downconverter- Rx

|                       |     |      |     |                                    |
|-----------------------|-----|------|-----|------------------------------------|
| IF Flatness           |     | +/-2 | dB  |                                    |
| Noise Figure          |     | 6    | dB  | 0 dB attenuation                   |
| Input P1 dB           | -15 |      | dBm | Nom. Gain<=16, RF attenuator -27dB |
| Attenuation Range     | -55 | 0    | dB  | Separate RF&IF Attn Control        |
| Attenuation step size |     | 1    | dB  | Nom.                               |
| RX Gain               |     | 16   | dB  | Nom. @ -27dB Attn                  |
| Mixing spurious       |     | -50  | dBc | Nom. Gain<=16, RF attenuator -27dB |
| Image Rejection       | 60  |      | dBc | Relative to gain @ Fc              |
| VSWR                  |     | 2    | :1  | All Ports                          |
| LO-RF Leakage         |     | -80  | dBm |                                    |

## Upconverter- Tx

|                       |     |      |     |                                    |
|-----------------------|-----|------|-----|------------------------------------|
| RF Flatness           |     | ±2.5 | dB  | @ 25°C                             |
| Gain control          | 50  |      | dB  | Separate RF&IF Attn Control        |
| Attenuation step size |     | 1    | dB  | Nom.                               |
| Mixing Spurs          |     | 50   | dBc | Nom. within ±0.6GHz of output Tone |
| RF Harmonics          |     | -25  | dBc |                                    |
| Gain                  |     | 30   | dB  | At 0dB Atten. Nom. (Trade w/IP1dB) |
| IP1dB                 | -18 |      | dBm | At 0dB Atten. Goal -10dBm          |
| Noise Figure          |     | 15   | dB  | 0 Attenuation                      |
| VSWR                  |     | 2    | :1  | All Ports                          |
| LO-RF Leakage         |     | -60  | dBm |                                    |

## Environmental

|                          |     |     |     |                                     |
|--------------------------|-----|-----|-----|-------------------------------------|
| Temp Range (Operating)   | -40 | 85  | °C  |                                     |
| External Reference Input |     | 100 | MHz | Nominal                             |
| Reference Input          | -3  | 3   | dBm | Sinewave                            |
| Size                     |     |     |     | 3U, 1" Pitch, Primary Side Retainer |
| Cooling                  |     |     |     | Conduction                          |
| Command Connector        |     |     |     | VPX backplane. P2                   |
| DC Power Conector        |     |     |     | VPX backplane P0                    |
| Digital control signals  |     |     |     | RS-485/LVDS Differential            |



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