SKYware GLOBAL

PRODUCT SPECIFICATIONS

DR5 Universal, Dual Polar, VSAT Transceiver

The DR5 Universal VSAT Transceiver, supports all known modems and may be switched between any of the Ku-outbound (receive) sub-bands.

Skyware Global introduces the DR5 series Ku-band integrated transceiver. This transceiver platform includes a DIP (diplexer) and is fitted with a dual polarization receiver.

This single transceiver, supports all known modems and may be switched between all Ku-outbound (receive) sub-bands and both Co- and Cross-polarization. These features offer huge logistical advantages over the existing first generation VSAT systems built using discrete components.

This breakthrough in performance and flexibility was achieved using Skyware's patent pending, "flexible downconverter" architecture.

With Skyware's unique PLL (phase locked loop) IC (integrated circuit), the result is a high stability PLL, at the same price as the lower performance DRO.

The integrated 5 W BUC (block up converter) was designed with high efficiency and linearity in mind, thus reducing operating temperatures, increasing reliability and minimizing environmental footprint.

In addition, the integrated OMT (ortho-mode transducer) and TRF (transmit reject filter) guarantee system critical EIRP and G/T at installation.

- All materials comply with EU directive No. 2002/95/EC (RoHS).
- All modems supported
- Ultra high stability PLL receiver standard
- Fully integrated housing
- Fast and easy installation
- Integrated OMT (and TRF) guarantee EIRP and G/T
- Engineered and designed in Germany
- 100% RF and temperature tested

SPECIFICATIONS

DR5 Universal, Dual Polar, VSAT Transceiver

Polarization Diplexer (OMT)

Parameter		Minimum	Typical	Maximum	Unit	Note
XPD on Common Port	Tx	35	40		dB	Orthogonal Linear Polarizations
	Rx	30				
Common Port Connector						18.5 mm Circular-WG, flat flange with 4 x M4 holes spaced as shown below

Tx Sub-System (BUC with External Reference)

Parameter			Minimum	Typical	Maximum	Unit	Note
RF Output Power							On Common Port
	Saturated Service	Psat	36.5	37.5		dBm	> 4.5 Watt
	Linear Service - 1 dB Gain	P1dB	36.0	37.0		dBm	> 4.0 Watt
IF Input Frequency Range			950		1450	MHz	
RF Output Frequency Range			14.00		14.50	GHz	
Local Oscillator Frequency (Nominal)				13.05		GHz	
Deviation within Operational Conditions and Lifetime					–	ppm	Dependent on External Reference
Local Oscillator Phase Noise (SSB)		@ 100 Hz			-55	dBc/Hz	
		@ 1 kHz			-72	dBc/Hz	
		@10 kHz			-82	dBc/Hz	
		@ 100 kHz			-92	dBc/Hz	
Local Oscillator Referemce Frequency				10		MHz	Sine Wave
	Frequency Capture Range		-15		15	ppm	
	Input Level		-10	0	5	dBm	
	Return Loss		3			dB	
RF Output Spurious							
	Out-of-band / 100 kHz	1.00 - 3.40 GHz			-49	dBm	SSPA On, Carrier On or Off
	Out-of-band / 100 kHz	3.40 - 10.70 GHz			-43	dBm	SSPA On, Carrier On or Off
	Out-of-band / 100 kHz	10.70 - 13.75 GHz			-37	dBm	SSPA On, Carrier On or Off
	In-band / 100 kHz	13.75 - 14.00 GHz			-23	dBm	SSPA On, Carrier On or Off
	In-band / 100 kHz	14.00 - 14.50 GHz			-40	dBm	SSPA On, Carrier Off
	In-band/ 100 kHz	14.00 - 14.50 GHz			-15	dBm	SSPA On, Carrier On
	In-band / 100 kHz	14.50 - 14.75 GHz			-23	dBm	SSPA On, Carrier On or Off
	Out-of-band / 100 kHz	14.75 - 21.20 GHz			-37	dBm	SSPA On, Carrier On or Off
	Out-of-band / 100 kHz	21.20 - 40.00 GHz			-31	dBm	SSPA On, Carrier On or Off
RF Output Noise Density		13.75 - 14.75 GHz			-95	dBm/Hz	SSPA On, Carrier Off
RF Output Spectrum Inversion				No			
IF Input Drive Power		Nominal Operation		-17		dBm	Application Dependant
		No Damage Level	5			dBm	
IF Input Impedance, Nominal				75		Ohm	
IF Input Return Loss		10				dB	
IF Input Connector							F-Type Receptacle
Conversion Gain, Linear Operation			53	56	59	dB	
In-band-segment Variation (Any 2 MHz Segment)					0.5	dB	Max-Min
Supply Voltage			15		30	V	
Supply Current @ 24 V					2.5	A	After Inrush, Carrier On

General Specifications

Parameter	Minimum	Typical	Maximum	Unit	Note
Weight			3300	g	Radio Module without Feed
Operating Temperature	-40		55	°C	
Moisture/Humidity Protection					IP67

SPECIFICATIONS

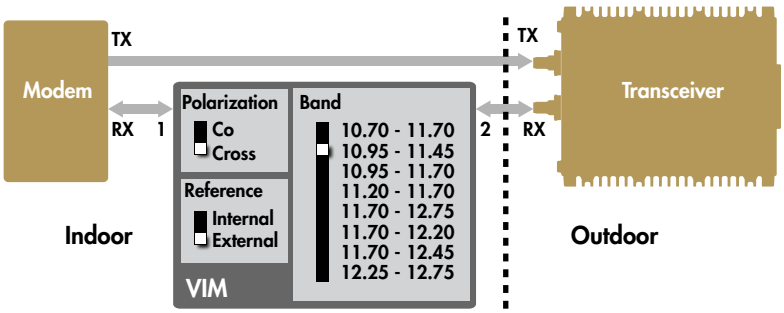
DR5 Universal, Dual Polar, VSAT Transceiver

Dual Polarization Rx Sub-System (Dual Band PLL LNB with External Reference)

Parameter			Minimum	Typical	Maximum	Unit	Note
RF Input Frequency Range	Low Band					See Table Below	
		High Band					See Table Below
IF Output Frequency Range	Low Band					See Table Below	
		High Band					See Table Below
Local Oscillator Frequency,	Low Band					See Table Below	
Nominal		High Band					See Table Below
Local Oscillator Frequency Tolerance						Determined by External Reference	Local Oscillator Phase Noise (SSB) @ 1 kHz
				-75		dBc/Hz	Reference Phase Noise
		@ 10 kHz		-80		dBc/Hz	is Specified Separately
		@ 100 kHz		-85		dBc/Hz	
Local Oscillator Integrated Phase Noise				2.0	3.5	°rms	100 Hz - 10 MHz
Local Oscillator Reference Frequency				10		MHz	Sine Wave
		Input Level	-10	0	5	dBm	
		Return Loss	3			dB	
Noise Figure @ 25°C				0.9	1.3	dB	Tx On (Carrier On or Off)
Equivalent Noise Temperature				69	104	K	Co-Polar or X Polar Tx Rx
RF Input Return Loss			3			dB	On Common OMT Port
Conversion Gain			50	56	62	dB	
	In-band Variation				6	dB	Max-Min
	In-band Segment Variation	Any 36 MHz			1.5	dB	Max-Min
Image Band Rejection			60			dB	
IF Output IP3			+5			dBm	
IF Output Spurious		C/No In-band			60	dBHz	Tx On, Carrier On
		C, Out-of-band/100 kHz			-25	dBm	Co-Polar or X-Polar Tx Rx
IF Output Spectrum Inversion						See Table Below	
IF Output Impedance				75		Ohm	
IF Output Connector							F-type Receptacle
Supply Current					210	mA	
Supply Voltage			19		24	V	

Easy 3 Step Configuration

1 Select the required band.
2 Select the reference source.
3 Select the polarization.



1 Select the LO (local oscillator) or receive band required.

Receive Band (RF) Name	Low GHz	High GHz	Modem IF Low GHz	Modem IF High GHz	LNB LO GHz	Spectrum Inversion	Stability (Internal only) ppm(±)
Universal Low	10.70	11.70	0.950	1.950	9.75	No	10
Euro Low	10.95	11.45	0.950	1.450	12.40	Yes	10
-	10.95	11.70	0.950	1.700	12.65	Yes	10
-	11.20	11.70	0.950	1.450	12.65	Yes	10
Universal High	11.70	12.75	1.100	2.150	10.60	No	10
US	11.70	12.20	0.950	1.450	13.15	Yes	10
-	11.70	12.45	0.950	1.700	13.40	Yes	10
Euro High	12.25	12.75	0.950	1.450	13.70	Yes	10

2 Select the 10MHz reference source. (If the modem has a 10 MHz reference available, this should be set to "External".)

3 Select the polarization

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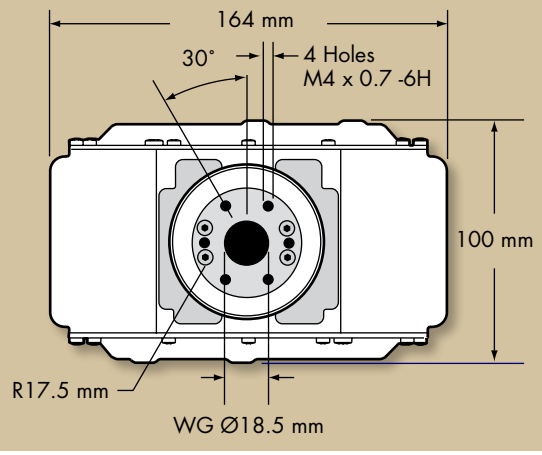
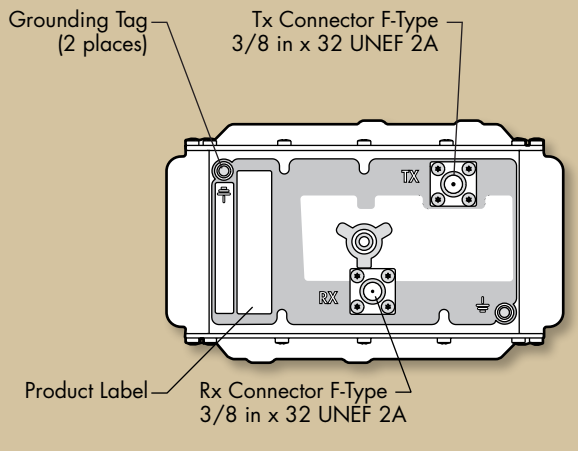
Mechanical Specifications

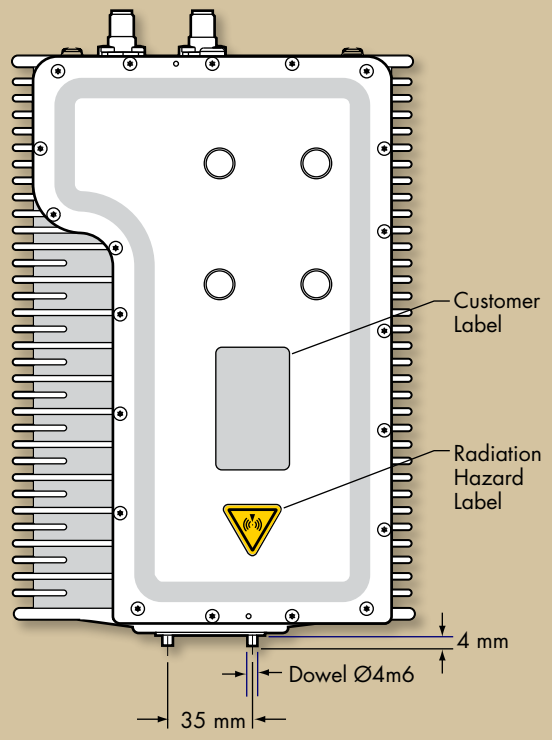
Front View



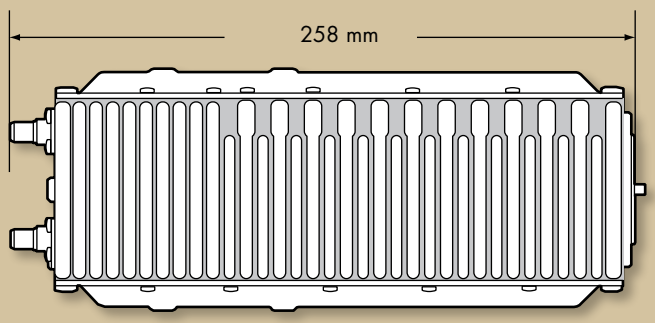
Rear View



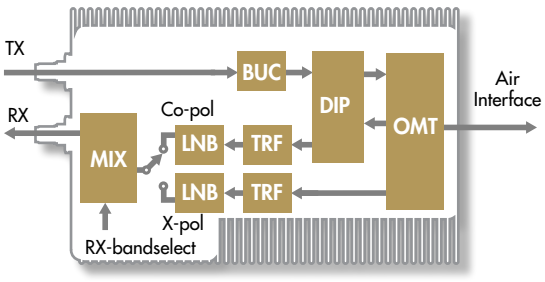
Top View



Side View



Internal Architecture



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