

### Features

- RF: 6-30 GHz; IF: 1-8 GHz
- Built-in LO with 6-30 GHz control range
- Highly precise OCXO reference clock
- Conversion Loss: 10 dB (typical)
- Dual-channel up/down conversion
- Bi-directional circuit topology
- 10 MHz/100 MHz and LO synchronization mechanism



Figure 1. UD Box 0630

### Applications

- Ku-band LEO Satellite
- WiFi-6e/7
- UWB
- Defense Radar
- 5G NR up-mid band/FR2
- Frequency extension for general sub-6 GHz equipment

### Function Block Diagram

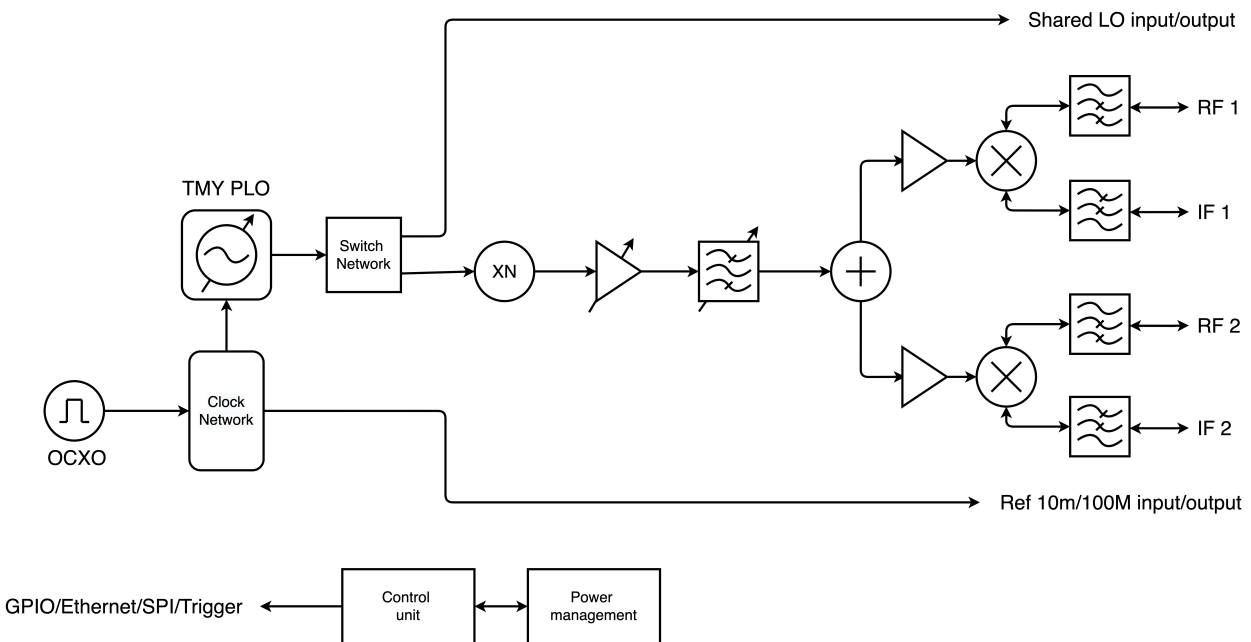


Figure 2. UD Box 0630 Block Diagram

## RF Specifications

Parameter	Conditions	Unit	Min.	Typ.	Max.
RF Frequency	---	GHz	6	---	30
IF Frequency	---	GHz	1	---	8
LO Frequency	---	GHz	6	---	30
LO Frequency Resolution	---	MHz	---	1	---
Reference Clock Stability	-30 ~ +70 degree	ppb	-50	---	50
Conversion Loss	Full band	dB	---	10	---
IF to RF Isolation		dB	30	---	---
RF to IF Isolation		dB	40	---	---
Lo to RF Leakage	Full band	dBm	-22	---	---
Lo to IF Leakage	Full band	dBm	-22	---	---
Tx Output P1dB		dBm	0	---	---
Rx Input P1dB		dBm	10	---	---
RF Return Loss	Full band	dB	---	6	---
IF Return Loss	Full band	dB	---	10	---
Warm Up Time	---	minutes	---	5*	---

\* Suggested warm up time for internal reference crystal clock

## Reference Clock & Synchronization

Parameter	Conditions	Unit	Min.	Typ.	Max.
100 MHz Output Power	---	dBm	5	---	---
100 MHz Phase Noise	@10 Hz carrier offset	dBc/Hz	---	-85	---
	@100 Hz carrier offset	dBc/Hz	---	-110	---
	@1 kHz carrier offset	dBc/Hz	---	-130	---
	@10 kHz carrier offset	dBc/Hz	---	-140	---
	@100 kHz carrier offset	dBc/Hz	---	-150	---
	@1 MHz carrier offset	dBc/Hz	---	-155	---
10 MHz Output Power	---	dBm	0	---	---
10 MHz Phase Noise	@10 Hz carrier offset	dBc/Hz	---	-100	---
	@100 Hz carrier offset	dBc/Hz	---	-125	---
	@1 kHz carrier offset	dBc/Hz	---	-145	---
	@10 kHz carrier offset	dBc/Hz	---	-155	---
	@100 kHz carrier offset	dBc/Hz	---	-160	---
	@1 MHz carrier offset	dBc/Hz	---	-165	---
100 MHz Input Power Requirement	Impedance 50 ohm	dBm	0		10
10 MHz Input Power Requirement	Impedance 1M ohm	dBm	0		10
LO Input Power Requirement		dBm	5		12
LO Input Freq. Requirement	As the fundamental freq.	GHz	6		30

## DC Characteristics

Parameter	Conditions	Unit	Min.	Typ.	Max.
DC Power Consumption	---	W	---	24	---
DC Input	---	V	---	12	---

## Software Specifications

Parameter	Conditions	Unit	Min.	Typ.	Max.
Switch time	---	ms	---	10	---
PC OS	Windows 7/8/10				
API Support Language	C#, C/C++, Python, LabView				
Control Interface	Ethernet (via LAN port) / SPI (via GPIO port)				

## Connector Specifications

Parameter	Conditions	Location	Type and Function
RF		Front Panel	Two 2.92-mm connectors (Female)
IF		Front Panel	Two 2.92-mm connectors (Female)
Reference Clock	10 MHz / 100 MHz	Front Panel	SMB connector (Female)
LO		Front Panel	2.92-mm connector (Female)
DC IN		Rear Panel	DC power jack
LAN		Rear Panel	Device control
GPIO		Rear Panel	HDMI connector
ON/OFF Button		Rear Panel	Power ON/OFF switch

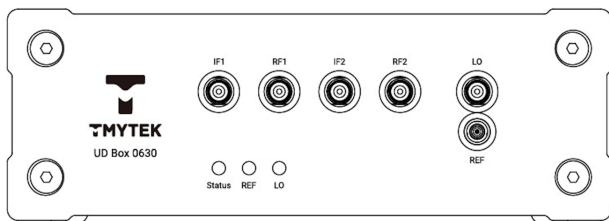


Figure 3. UD Box 0630 Front Panel

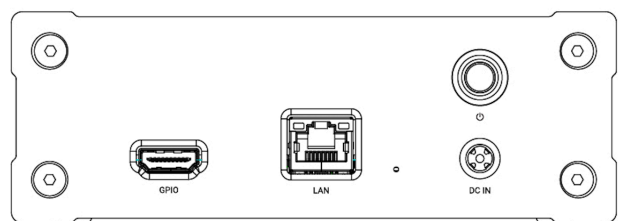


Figure 4. UD Box 0630 Rear Panel

## Package Details

TMYTEK's connectorized packaging:

Parameter	Condition	Unit	Main body	Connector included
Dimension	Length	mm	120.6	142.8
	Width	mm	152	152
	Height	mm	65	65
Weight	unit	g	---	900
Material	Aluminum	---	---	---

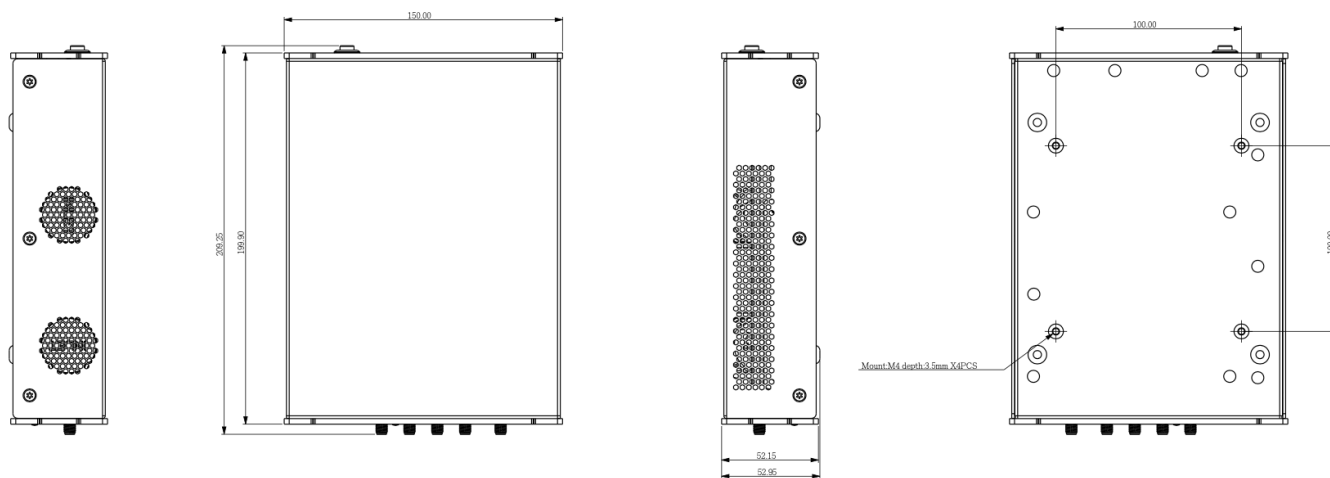


Figure 5. UD Box 0630 Mechanical Drawing