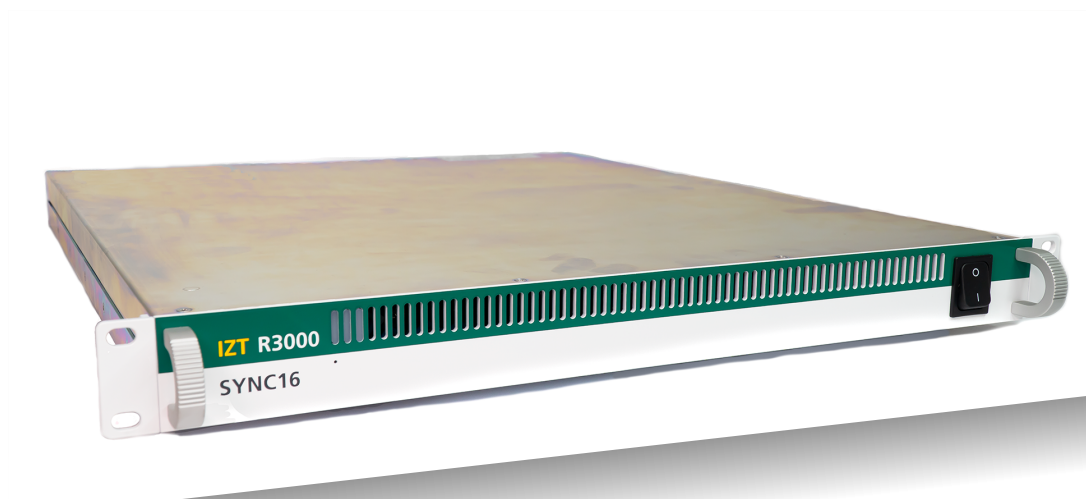


IZT R3000-SYNC16

Synchronization Unit



- 18 output ports for synchronized 10 MHz reference clock
- 16 output ports for synchronized SYNC pulse
- 16 output ports for synchronized ADC clock distribution
- Integrated 10 MHz OCXO reference clock
- Integrated SYNC pulse generator with adjustable pulse width
- Input for external reference frequency
- Input for external SYNC pulses
- Use of external SYNC pulse and external 10 MHz possible
- Small 19-inch rack with 1RU form factor

General Description

The IZT R3000-SYNC16 is made for phase coherent synchronization of up to sixteen IZT R3000 receivers. The synchronization interface provides output ports for 16x SYNC pulse (SYNC), 18x 10 MHz reference clock (REF) and 16x ADC clock (ADC).

An internal high performance OCXO (Oven Controlled Crystal Oscillator) is providing reliable excellent phase noise accuracy for the 10 MHz reference clock. It is also possible to use an external 10 MHz reference clock source, which is then controlling the internal OCXO via an integrated phase locked loop (PLL).

The SYNC pulse is synchronized with the reference clock. Its pulse duration can be configured with DIP switches between 125 ms, 250 ms, 500 ms, 1 s, 2 s, 4 s and 8 s. Furthermore it is possible to choose between the internal SYNC pulse generator and an external pulse source.

Next the IZT R3000-SYNC16 unit has also an integrated phase coherent ADC clock distribution with 16 output ports. It is designed for the standard IZT R3000 ADC frequency of 120 MHz, but can also be used in a frequency range between 10 MHz to 166 MHz with other receiver types.

The form factor of the IZT R3000-SYNC16 is 19" with 1U height.

FUNCTIONAL BLOCK DIAGRAM

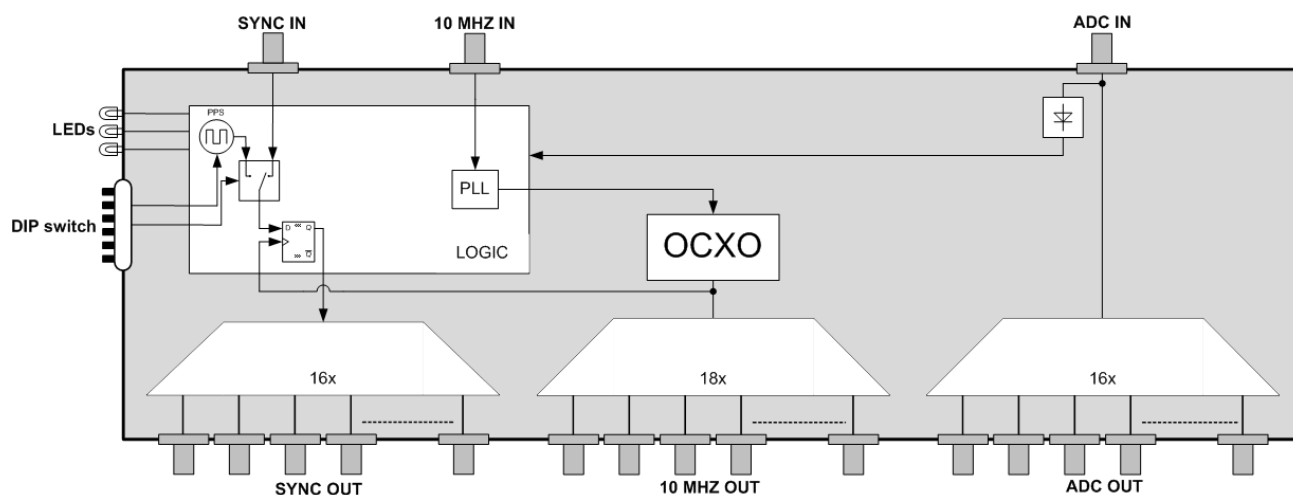


FIGURE 1: FUNCTIONAL BLOCK DIAGRAM

Technical Specifications

Parameter	Minimum	Typical	Maximum	Units
Mechanical dimensions				
Width		19		Inch
Height		1		RU
Depth		270 / 290 with handles		mm
Weight		4,5		kg
AC power supply				
Voltage	100	220	240	V
Power consumption		12	15	W
Frequency	50		60	Hz
Operating temperature	0		+70	°C
Storage temperature	-20		+70	°C
Humidity (non-condensing)			85	%
RF-Specification				
SYNC IN				
Connector type		SMA, female		
Voltage (CMOS)		3.3	5.5	V
Power (@50 Ω)		+8		dBm
Impedance		50		Ω
Low Level			0.5	V
High Level	2,0	3,3		V
Rise or Fall Time		< 1		$\frac{ns}{V}$
Coupling		DC		
SYNC OUT				
Number of ports		16		
Connector type		SMA, female		
Voltage (CMOS)		3.3		V
Power (@50 Ω)		+8		dBm
Impedance		50		Ω
Coupling		DC		
10 MHZ IN				
Connector type		SMA, female		
Frequency		10 MHz ± 10 Hz		
Power (@50 Ω)	+5	+10	+11	dBm
Impedance		50		Ω
Coupling		AC		

Parameter	Minimum	Typical	Maximum	Units
10 MHz OUT				
Number of ports		18		
Connector type		SMA, female		
Frequency		10		MHz
Voltage (@50 Ω)		2.0		Vpp
Power (@50 Ω)		+10		dBm
Impedance		50		Ω
Coupling		DC		
Waveform		square wave		
Duty cycle		50		%
ADC IN				
Connector type		SMA, female		
Voltage (CMOS)		3.3	5.0	V
Frequency	10	120	166	MHz
Power (@50 Ω)	0	+8	+10	dBm
Impedance		50		Ω
Coupling		AC		
ADC OUT				
Number of ports		16		
Connector type		SMA, female		
Voltage (CMOS)		3.3		V
Power (@50 Ω)		+10		dBm
Impedance		50		Ω
Coupling		DC		
Internal 10 MHz REF OCXO				
Frequency		10		MHz
Stability		$\pm 0,1$		ppm
Phase Noise (@10 MHz OUT Ports)				
@ 100 Hz offset		-125		$\frac{\text{dBc}}{\text{Hz}}$
@ 1 kHz offset		-145		$\frac{\text{dBc}}{\text{Hz}}$
@ 10 kHz offset		-145		$\frac{\text{dBc}}{\text{Hz}}$
Delay				
10MHz OUT to SYNC OUT		7.85 ns \pm 500 ps		

TABLE 1: TECHNICAL SPECIFICATIONS

Connectors and Configuration

FRONT PANEL

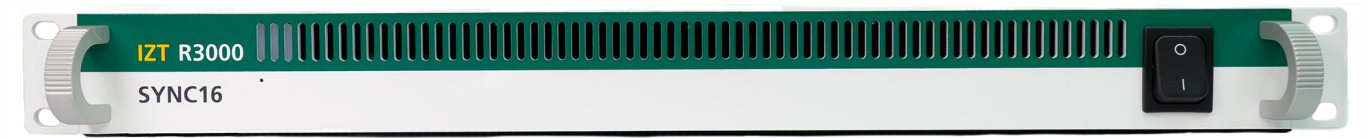


FIGURE 2: FRONT VIEW OF THE IZT R3000-SYNC16

Function	Description
Power switch	ON/OFF switch
LEDs	3 status LEDs (see description in table 3)

TABLE 2: DESCRIPTION OF FRONT PANEL ITEMS

Description of status LEDs

LED Position	Color	Description
Left	green	The device is powered up
Center	green	Internal 10 MHz is used as source for 10 MHz OUT
	orange	External 10 MHz is used as source for 10 MHz OUT
	orange blinking	10 MHz source is unlocked
Right	green	Internal SYNC is used as source for SYNC OUT
	orange	External SYNC is used a source for SYNC OUT

TABLE 3: STATUS LED DESCRIPTION

Connectors and Configuration

REAR PANEL



FIGURE 3: REAR VIEW OF THE IZT R3000-SYNC16

Interface	Connector	Description
Power	Power Connector	AC power jack with integrated fuse (exchangeable) and filter
Switches	DIP	DIP switch to set SYNC pulse duration and also to switch between internal and external pulse generation as SYNC pulse source
SYNC IN	SMA, female	Input of SYNC pulse
10 MHZ IN	SMA, female	Input of 10 MHz reference signal
ADC IN	SMA, female	Input of ADC clock signal
SYNC OUT	SMA, female	16 output ports of phase coherent SYNC pulse (typ. 1PPS)
10 MHZ OUT	SMA, female	18 output ports of phase coherent 10 MHz reference signal
ADC OUT	SMA, female	16 output ports of phase coherent ADC clock signal

TABLE 4: DESCRIPTION OF REAR SIDED CONNECTORS AND SWITCHES

IZT R3000-SYNC16

Synchronization Unit

About IZT The Innovationszentrum fuer Telekommunikationstechnik GmbH IZT specializes in the most advanced digital signal processing and field programmable gate array (FPGA) designs in combination with high frequency and microwave technology.

The product portfolio includes equipment for signal generation, receivers for signal monitoring and recording, transmitters for digital broadcast, digital radio systems, and channel simulators. IZT offers powerful platforms and customized solutions for high signal bandwidth and real-time signal processing applications. The product and project business is managed from the principal office located in Erlangen/Germany. IZT distributes its products worldwide together with its international strategic partners. The IZT quality management system is ISO 9001:2015 certified.

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