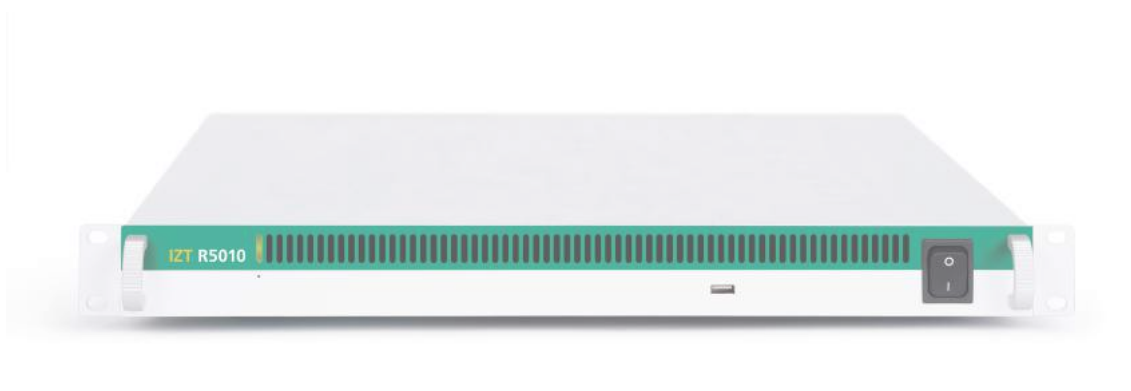


IZT R5010 Wideband Receiver



- Highest signal quality in the frequency range up to 6 GHz
- Frequency extensions possible
- Up to 120 MHz instantaneous bandwidth
- Six independent digital downconverters
- Real-time spectrum calculation
- Large internal buffer memory



The IZT R5010 is a wideband receiver with frequency range up to 6 GHz, up to 120 MHz instantaneous bandwidth and powerful internal signal processing. Typical applications are COMINT Systems, satellite monitoring, broadband RF recorders or quality measurements in mobile communication networks.



Figure 1: IZT R5010 Receiver

KEY FEATURES

Highest Reception Quality

The IZT R5010 uses IZT's latest generation of tuners with sub-octave preselectors, dual conversion and a variable 1st IF for maximum robustness against false reception and high-power mixers for maximum linearity. A low-noise preamplifier can be activated for maximum sensitivity. Built-in test equipment allows for end-to-end verification and alignment of the receiver. The receiver can be operated in manual or automatic gain control mode. All internal clocks can be synchronized to an external source or the built-in GNSS receiver.

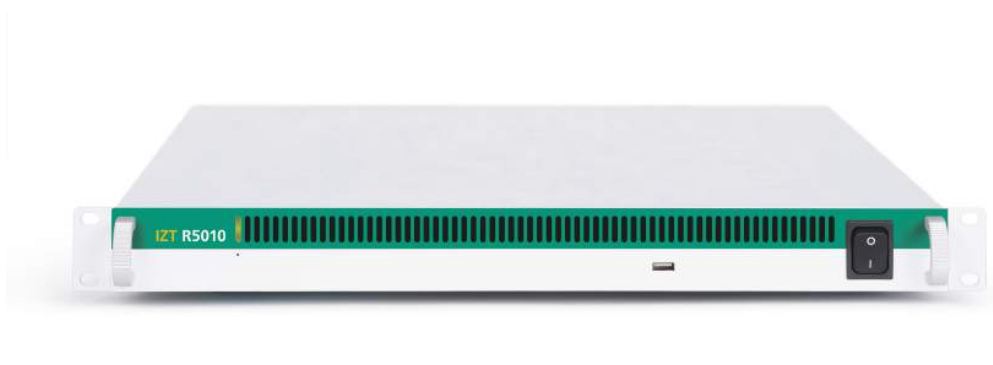


Figure 2: IZT R5010 Receiver

Large Instantaneous Bandwidth and Six DDCs

IZT R5010 uses latest FPGA technology for signal processing.

In its baseline configuration the IZT R5010 offers an instantaneous bandwidth of 60 MHz. Software option IZT R5010-100 increases the available bandwidth to 80 MHz. With option IZT R5010-120 the maximum bandwidth of 120 MHz will be activated.

Up to six DDC channels can be set up within the instantaneous bandwidth of the receiver. Each DDC can handle the full bandwidth, so the only limitation is the maximum output streaming capacity of 20 Gb per second. The decimation is continuously variable and can be chosen independently for all six DDCs. With maximum decimation, the sample rate can be set as low as 10 kHz at the output of a DDC. The IZT R5010's flexible job control allows the user to define complex scan scenarios that will be executed by the receiver. The output data is provided via UDP as complex I/Q data with embedded meta data very similar to the proven IZT R3000 data format. Accurate time stamps allow for calculating the reception time for each sample down to sub-nanosecond accuracy.

Broadband PSD

With option IZT R5010-200 the receiver calculates a PSD with 32678 points in FPGA with very high frequency selectivity. The PSD can be connected to any DDC in use. By adjusting the variable decimation rate of the DDC, the bin spacing of the DDC can be set to an arbitrary value. To reduce the data rate, a RMS detector can accumulate frames before the result is sent to the host computer via the digital interface.

Internal Memory Buffer

Not all use cases require or even support the continuous streaming of the large bandwidth. Therefore the IZT R5010 can be equipped with an optional internal RAM buffer. With this option, the user can configure, which of the DDC channels will be routed to the buffer instead of the data output. Once the buffer is full, the respective stream will stop. Commanded by the user the content of the buffer will be streamed to the client at a data rate set by the user. With option IZT R5010-BUF1 a total number of 256 megasamples can be stored. The maximum available memory depth is 1280 megasamples with option IZT R5010-BUF2. Operation through the buffer and continuous streaming may happen in parallel, as long as the maximum capacity of the output interface is not exceeded.

SPECIFICATIONS

Specification	IZT R5010
Frequency range	20 MHz to 6000 MHz
Noise figure	15 dB
Instantaneous bandwidth	Up to 120 MHz
Number of DDCs	Up to six
Preselector	14 bands, electronic switching
Conversion scheme	Dual conversion with variable 1st IF
Data output	UDP via two 10 Gbps optical LAN outputs
PSD	32768 points
Mechanical size	19", 1U
Power consumption	Approx. 100 W

ORDERING GUIDE

Option	Description
IZT R5010-CHS	Receiver Chassis with frequency range 20 MHz to 6000 MHz, 60 MHz instantaneous bandwidth, one DDC
IZT R5010-GNSS	Built-in GNSS Synchronisation
IZT R5010-BUF1	Memory Buffer for 256 megasamples
IZT R5010-BUF2	Memory Buffer for 1280 megasamples
IZT R5010-100	Instantaneous Bandwidth 80 MHz
IZT R5010-120	Instantaneous Bandwidth 120 MHz
IZT R5010-200	Six Independent DDCs
IZT R5010-300	Real-time PSD with 32768 points

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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