TR-7730U

UHF AM DIGITAL RADIO

JOTRON

www.jotron.com

Jotron 7000 Series

- Excellent RF performance in congested areas
- Advanced digital signal processing (DSP)
- Remote control through Ethernet
- Easy set-up and control
- Compact design
- In-band signalling for PTT and squelch
- Continuous duty cycle
- Offset carrier
- VoIP according to ED-137
- Start-up time <6 seconds
- Parallel operation (analogue and VoIP interfaces)

Excellent RF performance in congested areas
Careful analogue design is the key to achieving the best collocation capabilities possible. The 7000 series of radios are designed without compromising the synthesizers and analogue front end. Together with a linear power amplifier design and strict control by an ultra fast digital signal processor, making these the ultimate radios of choice for professional air traffic control applications.

Advanced digital signal processing (DSP)
The receiver and transmitter use the most powerful digital signal processors to perform the intermediate frequency (IF) and the audio frequency (AF) filtering. In addition, all the modulation and demodulation tasks are performed in the signal processor. This means improved product control, less tunable parts and improved reliability.

Remote control through Ethernet
The radio has alternative ways of being controlled, allowing it to fit easily into an existing onsite infrastructure. The radio is controlled and monitored using Simple Network Management Protocol (SNMP) and the Jotron dedicated Remote Control and Monitoring System (RCMS) or by a standard SNMP management application. Alternatively, setup and control can be either TCP/IP on the Ethernet, or the RS232/RS485 ports. The radio has a built in web-server for displaying current status and historical events.

Easy set-up and control
All parameters can be set and adjusted electronically from the front panel or from the remote interface. The front panel contains a graphical display, menu buttons and switches that are used during set up of the radio.

Compact design
A complete transceiver consists of 3 units; transmitter, receiver and power supply. A 3U/19'' sub-rack can hold one transceiver, up to 6 receiver units or 2 transmitter units, therefore offering a flexible and compact design.

BITE system
The Built In Test Equipment (BITE) system con-

TR-7730U Transceiver

TA-7630U Transmitter

RA-7203U Receiver

tinuously monitors the technical parameters and reports real-time activity.

Keying options
The transmitter includes the following keying options: Positive and negative voltages (up to 50V), ground keying and phantom keying on the audio line. In addition, in-band tone signalling with configurable tones for easy integration is also an option.

Duty cycle
The transmitter is designed for continuous duty cycle. The unique cooling concept in the transmitter, keeps the temperature low, ensuring the best maximum operational life. This makes the radio the perfect choice for VOLMET and ATIS applications requiring continuous transmission.

Offset carrier
Up to 5 offset carriers are available using the temperature controlled oscillator in the transmitter.

Squelch system
The squelch system consists of a level and a noise compensated squelch, both are adjustable, which is useful in radio frequency congested areas. Relay contacts with configurable logic and in-band tone signaling are available, making this system flexible.

VoIP according to ED-137
VoIP has been an option in Jotron radios since 2009. These radios are fully compliant with the ED-137 standard. Additional options for IPv6 and G.729 compression codec for use through connections with bandwidth limitations are available. By using VoIP interface the audio delay is minimalized, therefore, comparable to a radio operated with an analogue or a TDM line.

Parallel operation on all interfaces
A Voice Communication and Control System (VCCS) using an analogue interface can be connected and operated in parallel with a VCCS VoIP interface, allowing a seamless transition between analogue and VoIP.

TECHNICAL SPECIFICATIONS

General – All units	AM 25 kHz	AM 12,5 kHz	FM
Frequency range	225-400 MHz		
RF Modes	6K80A3EJN	5K00A3EJN	
Keying time	< 25ms	< 25ms	< 25ms
Frequency response	300-3400 Hz	350-2500 Hz	300-3400 Hz
Frequency stability	<1.0 ppm		
Data ports	RS232, RS485, Ethernet (100BaseT)		
Protocol	Remote Control: SNMP (UDP/IP), Jotron monitoring (TCP/IP) Voice over IP: RTP (ED-137)		
BITE monitoring	VSWR, Voltages, Currents, Levels, Lock detect, Temperature, Output power, Reflected power, a.o.		
Supply voltage, AC	85 to 264VAC, 47-63Hz		
Supply voltage, DC	21.6 - 31.2VDC negative ground		
MTBF	>10 years / unit		
MTTR	<30 minutes at lowest replaceable unit		

Transmitter (TA-7630U)	AM 25 kHz	AM 12,5 kHz	FM
Output power	1-30W		
Adjacent channel power	>70 dBc	>60 dBc	>70 dBc
Modulation level	up to 95%		
Distortion	< 5%		
Line input	600Ω, -36 - +10dBm		
Intermodulation attenuation	>65 dB when interfering signal is decoupled with at least 30 dB		
Tx timeout	10s to 5 min in 10s step		
Inband keying	Configurable tones: 2000-4000Hz		
Carrier offset	2,3 or 4		
Differential group delay	<60µs		
VSWR	1 : Infinity		
Duty cycle	100% continuous operation@ambient below 40°C		
Power consumption	<280VA		
Dimension Transmitter unit	142mm(28TE)(W) * 330mm(D) * 128mm (H), Weight 3.8 kg		
Dimension PSU unit	71mm (14TE)(W) * 303mm(D) * 128mm (H), Weight 1.3 kg		
Broadband noise	<150dBc/Hz @1% offset		
Spurios emissions	<-80dBc		

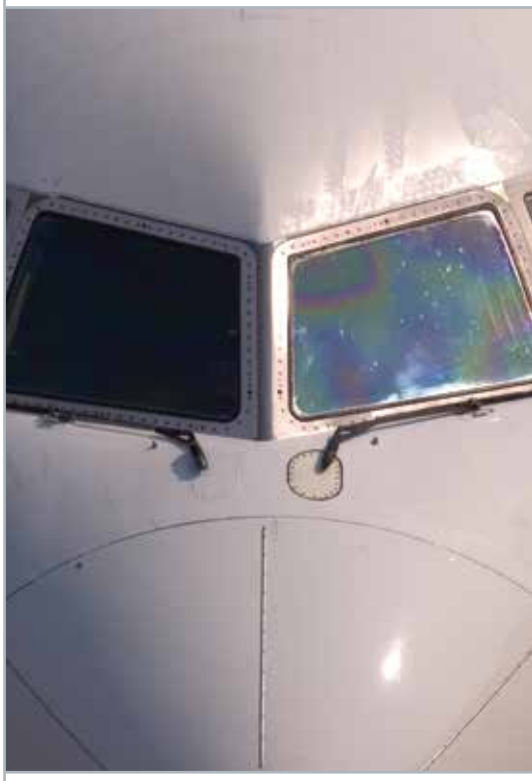
Receiver (RA-7203U)	AM 25 kHz	AM 12,5 kHz	FM
Sensitivity analogue @1µV / 30% pd	10dB SINAD (CCITT)		
Adjacent channel rejection	>75dB	>70dB	>80dB
Intermodulation	>75 dBc		
IF bandwidth	+/- 11kHz	+/- 3.5 kHz	+/- 11 kHz
Image and IF frequency response	>110 dB		
Squelch operation	Adjustable -107dBm, 30dB /		
	S/N + carrier override		
	Activation time <30ms		
	Hysteresis <6dB		
Audio AGC	30% - 90%, <1dB variation		
Signal / Noise	>45dB on any output @100µV, 30%		
Distortion	<5% @ 90% modulation		
AGC range	-107dBm to +5dBm		
AGC attach time	<40ms		NA
AGC decay time	<200ms		NA
Differential group delay	<60µs		
Inband squelch signal	Configurable tones: 150-3400Hz		
Line output	600Ω, -36 - +10dBm @90% modulation		
Harmonic distortion	<5% @90% AM (line output)		
Cross-modulation	>95dB @ 1MHz frequency offset		
Blocking	>100dB @1MHz offset, >110 dB out of band signals		
Dynamic range	>120dB		
Spurious response rejection	>80dB		
Dimension Receiver unit	71mm (14TE)(W) * 330mm(D) * 128mm (H), Weight 1.8 kg		

Standards

EN302 617(AM)

Environmental

Temperature range:	-20°C to +55°C (operating) -40°C to +70°C (storage)
Humidity:	90% @ +40°C (non condensing)
Random vibration:	ETSI EN 3000019-2-2(V2.1.2) IEC 60068-2-64
Bump:	ETSI EN 3000019-2-2(V2.1.2), IEC 60068-2-29
Free fall:	ETSI EN 3000019-2-2(V2.1.2), IEC 60068-2-32
EMC:	EN 301 489 – part 22
SAFETY:	IEC 60950-1,CSA-C22.2 No. 60950



Agent/Distributor:

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www.jotron.com

CONTACT INFORMATION

Jotron AS
P.O.Box 54
3281 Tjodalyng
Norway
Tel: +47 33 13 97 00
Fax: +47 33 12 67 80
sales@jotron.com

Jotron UK Ltd.
Crosland Park
Cramlington
NE23 1LA
United Kingdom
Tel: +44 (0) 1670 712000
Fax: +44 (0) 1670 590265
sales@jotron.com

Jotron Asia Pte. Ltd.
19 Loyang Way
Changi Logistics Centre
Rear Office Block 04-26
Singapore 508724
Tel: +65 65426350
Fax: +65 65429415
sales@jotron.com

Jotron USA, Inc.
10645 Richmond Avenue, Suite 170
Houston, TX 77042
USA
Tel: +1 713 268 1061
Fax: +1 713 268 1062
sales@jotron.com