A-Series AR-80
Satellite Demodulator

www.work-microwave.com

The A-Series is a family of next generation satellite modem platforms built on versatile FPGA- and software-based architecture. The AX-80 product line supports DVB-S2X/S2 standards with utmost possible throughput up to bandwidths of 500 Msps. Exceptional analog and digital engineering provides teleport-grade devices with future-proof expandability.

Beyond DVB waveforms, A-Series devices can be extended to customized signal and data processing. Through an all-IP structure, the platform supports both native network operation as well as data streaming over IP. Built-in encapsulators provide support for a wide range of formats plus specialized streaming like transparent baseband data, raw IQ information, space data formats and more.

The **AR-80 Satellite Demodulator** is a powerful receiver for DVB-S2/S2X wideband signals. A wide range of supported frame formats and data types allows transparent access to all layers of transmissions. Together with extensive monitoring utmost control and insight over signal reception is provided for networks, LEO downlinks, governmental applications, and others.

Key Features

- DVB-S2X - ETSI EN 302 307-2
- DVB-S2 - ETSI EN 302 307-1
- DVB-S2X modulations:
  QPSK to 256APSK normal, short, linear
- DVB-S2 modulations:
  QPSK to 32APSK; normal, short
- Symbol rates up to 500 Msps
- Data rate up to 3 Gbit/s per direction
- Roll-Off: 35%, 25%, 20%, 15%, 10%, 5%
- Operates as layer 3 bridge or layer 3 router including traffic shaping / QoS functionality
- ACM controller open to various ACM systems
- GSE and MPE encapsulation integrated
- Transparent output of all transmission layers
- Customizable processing infrastructure for easy integration into large communication systems
- Flexible software architecture for easy extension and future virtualization of functionality
- **3 years warranty**

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RX Signal Specifications

Signal input L-band:	Frequency:	950...2150 MHz	
	Connector:	1x N female / SMA female adapter included	
	Impedance:	50 Ohm	
	Return Loss:	> 13 dB	
	Input power:	-55...-10 dBm total aggregate power	
Symbol rate:	Range:	5 Msps ... 500 Msps ***depending on license RXS****	
	Acquisition bandwidth:	± selected symbol rate / 2	
	Tolerance:	± 1% of selected symbol rate	
DVB-S2X Modulation / Coding:	ModCods: (normal FEC frame)	QPSK 8PSK 16APSK 32APSK 64APSK 128APSK 256APSK	13/45, 9/20, 11/20 23/36, 25/36, 13/18 26/45, 3/5, 28/45, 23/36, 25/36, 13/18, 7/9, 77/90 32/45, 11/15, 7/9 11/15, 7/9, 4/5, 5/6 3/4, 7/9 32/45, 3/4
	ModCods: (short FEC frame)	QPSK 8PSK 16APSK 32APSK	11/45, 4/15, 14/45, 7/15, 8/15, 32/45 7/15, 8/15, 26/45, 32/45 7/15, 8/15, 26/45, 3/5, 32/45 2/3, 32/45
	ModCods linear: (normal FEC frame)	8PSK 16APSK 32APSK 64APSK 256APSK	5/9-L, 26/45-L 1/2-L, 8/15-L, 5/9-L, 3/5-L, 2/3-L 2/3-L 32/45-L 29/45-L, 2/3-L, 31/45-L, 11/15-L
		all according to ETSI EN 302307-2	
DVB-S2 Modulation / Coding:	ModCods: (normal and short FEC frame; 9/10 normal FEC frame only)	QPSK 8PSK 16APSK 32APSK	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 3/4, 4/5, 5/6, 8/9, 9/10
	Auto detection:	Modulation- and FEC-type pilots on / off CCM / VCM / ACM	
	Physical layer scrambling:	N = 0...262141	
		all according to ETSI EN 302307-1	
Time-slicing:	Physical layer framing according to ETSI EN 302307 Annex M ***w/ license RTS***		
Signal spectrum mask:	α = 0.35, 0.25, 0.20, 0.15, 0.10, 0.05 according to ETSI EN 302307		

Specifications are subject to change

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Data Processing and Device Specifications

Device connectors:	Data network:	6x Ethernet RJ-45, 10/100/1000Base-T auto sensing 2x SFP+ adapter slot for optical GbE or optical/copper 10GbE ***Contact factory for available SFP+ modules.***
	M&C network:	1x Ethernet RJ-45, 10/100/1000Base-T auto sensing
	Reference input:	BNC female, 50 Ohm ***w/ option RT***
	RX time stamp synchronization:	SMC male, 26 pin ***w/ option RT***
Reference Input: ***w/ option RI***	Frequency:	5 or 10 MHz sine wave
	Level:	5 dBm +/- 5 dB @ 50 Ohm
	Modes:	auto / extern / intern
	Connector:	BNC female, 50 Ohm
Network operation:	IP network connectivity:	Layer 3 Bridge or Router for IPv4 packet transmission, IPv6 on request
	Data decapsulation:	Generic Stream Encapsulation (GSE) according to ETSI TS 102606 Multiprotocol Encapsulation (MPE) according to ETSI EN 301192 ***Contact factory for other encapsulation formats.***
	IP data rate limits:	6 Gbps or 1 Mpps rx+tx processing, subject to prevailing modem limits maximum rates can vary in combination with complex internal processing
Stream outputs:	Interfaces:	2x RTP/UDP/IP over Ethernet according to IETF RFC 2250
	Baseband data:	direct output of baseband data w/o filtering padding selectable ***w/ license BBO***
	Transport stream:	transport stream from DVB carriers 1 ISI selectable from DVB-S2 multistream carriers ***w/ license TSO***
	IQ data:	raw IQ data after demodulation signed 8-bit I and Q values for each symbol decimator selectable to reduce bandwidth occupation ***w/ license IQ***
	CCSDS CADU frames:	extraction of CCSDS CADU frames from DVB-S2 automatic detection of frame length ***w/ license CCSDS131.3***
Frontpanel interface:	LCD-Display 2x40 characters, 4 cursor keys, 4 function keys	
Remote monitoring and control:	Protocol: Connection:	SNMP UDP/IP over Ethernet/RJ-45 or in-band via satellite link
	Protocol: Connection:	HTTP web browser interface TCP/IP over Ethernet/RJ-45 or in-band via satellite link
Temperature range:	Operating:	0°C...50°C
	Storage:	-30°C...80°C
	Relative humidity:	< 95% non condensing
Mains power:	Input:	100...240 V AC nominal, 90...264 V AC max, 50...60 Hz
	Consumption:	150 VA / 150 W typical
	Connector:	IEC C14
Dimension and weight:	483 x 89 x 505 mm³ (WxHxD), 2 RU 19" up to approx. 14 kg depending on device type	

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Order information:

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Hardware options:

Hardware options have to be defined with the order and are not field-upgradable. Not all device types may support all combinations. Please contact WORK Microwave for custom hardware options.

RT	external reference input and synchronization timestamp

License based throughput:

License based throughput performance is field-upgradable by uploading a license file to the device.

RXSxxx	symbol rate based reception license for xxx Msps select from: **RXS125** (default), **RXS250, RXS400, RXS500**

License based functions:

License based functions are field-upgradable by uploading a license file to the device.

RTS	DVB-S2X time-slicing support for reception
BBO	direct baseband frame output streaming over IP
TSO	transport stream over IP output
IQ	IQ constellation data output over IP
CCSDS131.3	decapsulation of CCSDS CADU frames from DVB-S2/S2X signals
XULE	generic stream ULE packet decapsulation
GS-01	generic stream type 01 decapsulation