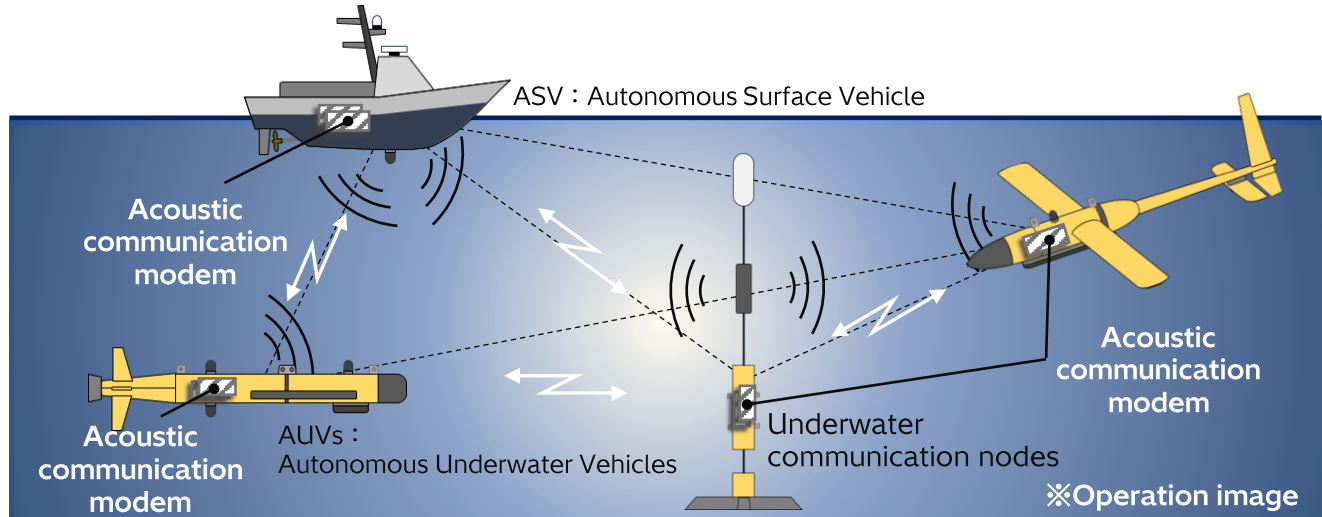


Acoustic communication modem



Highly robust communication devices are getting more important to realize an integration of various assets in harsh environments affected by doppler effects and multipath. The underwater acoustic communication modems can use up to 5 receivers to improve communication quality through receiver diversification. In addition, it adopts a robust single carrier method for doppler effect, that is resistant to time variations and implements processing such as resampling and double correlation processing. It has already been tested and evaluated in actual sea trials. For the transmitting channels, multiple transmitters can be connected (up to 2 channels), realizing a scalability from small to large assets. This product was jointly developed by JAMSTEC※1 and Hitachi, Ltd. in SIP※2.

● Records

- Implemented in 1 ASV and 4 AUVs in SIP※3,4
- Implemented in Shinkai 6500※5

※1 Japan Agency for Marine-Earth Science and Technology

※2 Cross-ministerial Strategic Innovation Promotion Program

※3 JAMSTEC SIP News Letter vol.30 24, AUG. 2022

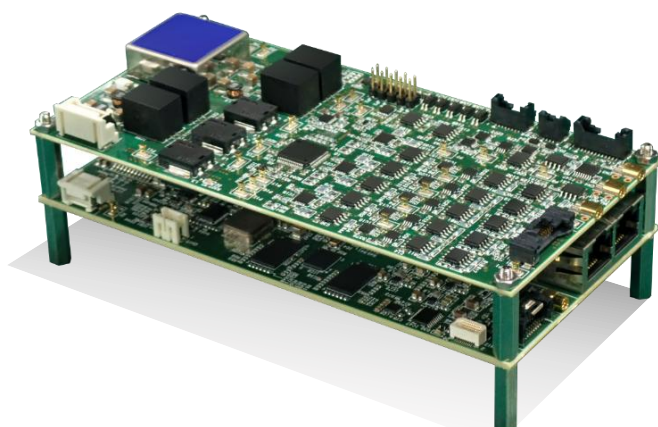
※4 Development of integrated acoustic communication and positioning system for operation of autonomous underwater vehicle and sea trial

※5 High-rate acoustic communication at the data rate of 69 kbps over the range of 3,600m developed for vertical uplink communication

● Application example



Line up



Analog frontend module



Processor module



※ spacers/stands are not includes

In addition to the above lineup, we also provide support for developing custom boards and building your systems suited to your applications.

Specifications

	Processor module	Analog frontend module
MODULATION	BPSK/QPSK/8PSK/16QAM/ 32QAM/64QAM/128QAM/256QAM	—
CARRIER FREQ.	5kHz~50kHz (Not include transducer)	—
BANDWIDTH	2ksps~12.5ksps	10kHz~30kHz
Experimental Result	79.1kbps@6500m※6 Actual communication speed depend on a system configuration, platform and environments.	
INPUT	—	ch : 5ch Gain : Varied Input range : 3.4Vpp(depend on gain) I/F:16 pins connector
OUTPUT	—	ch:2ch ATT:Varied Output range : 5Vpp(depend on ATT) I/F:MMCX connector
I/F	Ethernet(TCP/UDP) 100M/1Gbps RJ45 connector	Stacking connector (Use with communication board stacked)
SUPPLY	Supply from Analog frontend board	48Vdc
POWER CONSUMPTION	< 24W The sum of communication board and analog front-end board	
SIZE	< 80×160×40 (mm)	< 80×160×40 (mm)
	< 80×160×60 (mm) Stacked	
TEMP. RANGE	-10~+60°C(Operation・Storage) Air flow 500LFM	
HUMIDITY	<95%RH Avoid use in environments prone to condensation. Recommend nitrogen substitution for use in sealed container.	

※6 <https://www.jamstec.go.jp/mare3/j/development/member/pdf/sp06.pdf>

- Contact below for detail specifications.
- Power supplies, amplifiers and transducers are NOT attached.
- Hitachi reserves the right to change its specifications without prior notice.
- In the case of exporting, you should comply with all applicable laws and regulations, including the Foreign Exchange, Foreign Trade law, and take necessary procedures. Questions regarding exporting, please contact us below.

CONTACT INFORMATION

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