WaterLinked
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Miniature underwater communication – Modem M16

The Water Linked M16 modem is a miniature 16 bits per package underwater acoustic modem which has been designed for use in the most challenging of environments, where a reliable connection is of utmost importance.

Utilising the latest technology, developed for Aquaculture, Water Linked has produced a modem which provides a robust half duplex communication link with an acoustic range of 1,000m.

With a rapid boot-up time, the M16 modem is ideal for use with subsea vehicles or instrumentation that has limited available power.

When transmitting and receiving data, the M16 modem continues to offer the benefits of a low power solution requiring less than 2 watt seconds during transmission.

With 12 channels to choose from, operating around a 58.5 kHz centre frequency, multiple modems can be operated at the same time in the same area without interference.

Maintaining a small physical size and being lightweight was critical when designing the M16 modem for OEM integration, allowing the M16 modem to be integrated with little impact on the design of the overall system.

A transparent UART interface allows for simple low power connection to sensors, while an extended cable variation of the M16 modem is available with RS422 communication.

Key features

- Robust bi-directional communication
- 1,000m acoustic range
- Low power requirement
- Rapid boot-up time
- 600m depth rated
- 16 bits per package
- <250 mW Rx power
- Serial interface

35.5 mm
OEM housing

47.5 mm
Flange housing

47 mm
Standard/Extended

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Acoustic | performance

Carrier frequency	58.5 kHz
Frequency bandwidth	7812 Hz
Transmitter source	160dB re 1µPa at 1m
Directivity	Omnidirectional
Acoustic range	1,000m
Bits per package	16
Package duration	1.6 seconds
Communication type	Half duplex

Electrical | interface

Type	OEM	Flange	Standard	Extended cable
Input voltage	3.0 - 4.2 Vdc	3.0 - 4.2 Vdc	3.0 - 4.2 Vdc	10 - 30 Vdc
Power (Tx)	<1.1 W	<1.1 W	<1.1 W	<2.0 W
Power (Rx)	<250 mW	<250 mW	<250 mW	<400 mW
Cable length	0.3m	0.3m	2m	15m
Communication	Serial UART (2.5-3.3V CMOS, 2.5-5V TTL)	Serial UART (2.5-3.3V CMOS, 2.5-5V TTL)	Serial UART (2.5-3.3V CMOS, 2.5-5V TTL)	RS422
Onboard data buffer	16 bits (while transmitting)			

Mechanical

Dimensions (excludes cabling)	Ø3.0 x 3.6 cm	4.1 x 4.1 x 4.8 cm	Ø3.0 x 4.7 cm	Ø3.0 x 4.7 cm
Weight in air (excludes cabling)	27 g	62 g	40 g	40 g
Weight in water (excludes cabling)	12 g	32 g	14 g	14 g
Cable jacket diameter	N/A	N/A	Ø6.0 +/- 0.2 mm	Ø6.0 +/- 0.2 mm
Depth rating	600 meters			
Material	POM (housing), PEEK (transducer)			
Operating temperature	-10 to 70 °C			

Approvals

CE

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