



Product Specification

OEM Ethernet Sonar G5 Module

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Introduction

The OEM Ethernet Sonar G5 Module, OESM G5 is a versatile high performance digital sonar module. Using OESM G5 is a fast and easy way to add SONAR to a lot of applications. The low power consumption and tiny physical size makes it ideal for AUVs and ROVs. OESM G5 is built on DeepVision's state of the art Digital Sonar Signal Processor Generation 5, DSSP G5 and has a 10/100 Mbit Ethernet interface.

Main features:

- Dual channel
- Very wide frequency range: 50 kHz to 1200 kHz - Depending on firmware
- Chirp Pulses
- Pulse Compression
- Very high resolution. Down to 1 cm.
- Low power consumption. Approx 150 mA @ 14V average.

Typical applications:

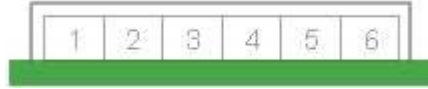
- Side Scan Sonar
- High performance fishfinder
- Depth Sounder
- Scientific SONAR
- Commercial fishing sonar
- Scanning SONAR
- AUV navigation

DeepVision offers DeepView, a complete software system for processing/interfacing the OESM. A free API is also available for custom applications.

Connectors

Sonar Transducer Connector

The sonar transducer connector is a Ampmodu Mod II 6-way male pin header connector. Pitch is 2.54 mm. A suitable mating connector is TE Connectivity part number 280360.

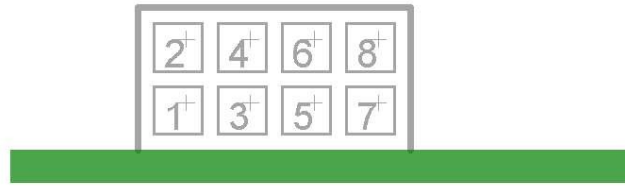


Sonar Transducer Connector

1	T1+	Transducer positive channel 1.
2	T1-	Transducer negative channel 1.
3	Gnd1	Ground/Shield channel 1.
4	Gnd2	Ground/Shield channel 2.
5	T2-	Transducer negative channel 2.
6	T2+	Transducer positive channel 2.

Main Connector

The main connector is a Ampmodu Mod II 2x4-way male pin header connector. Pitch is 2.54 mm. A suitable mating connector is TE Connectivity part number 280365.



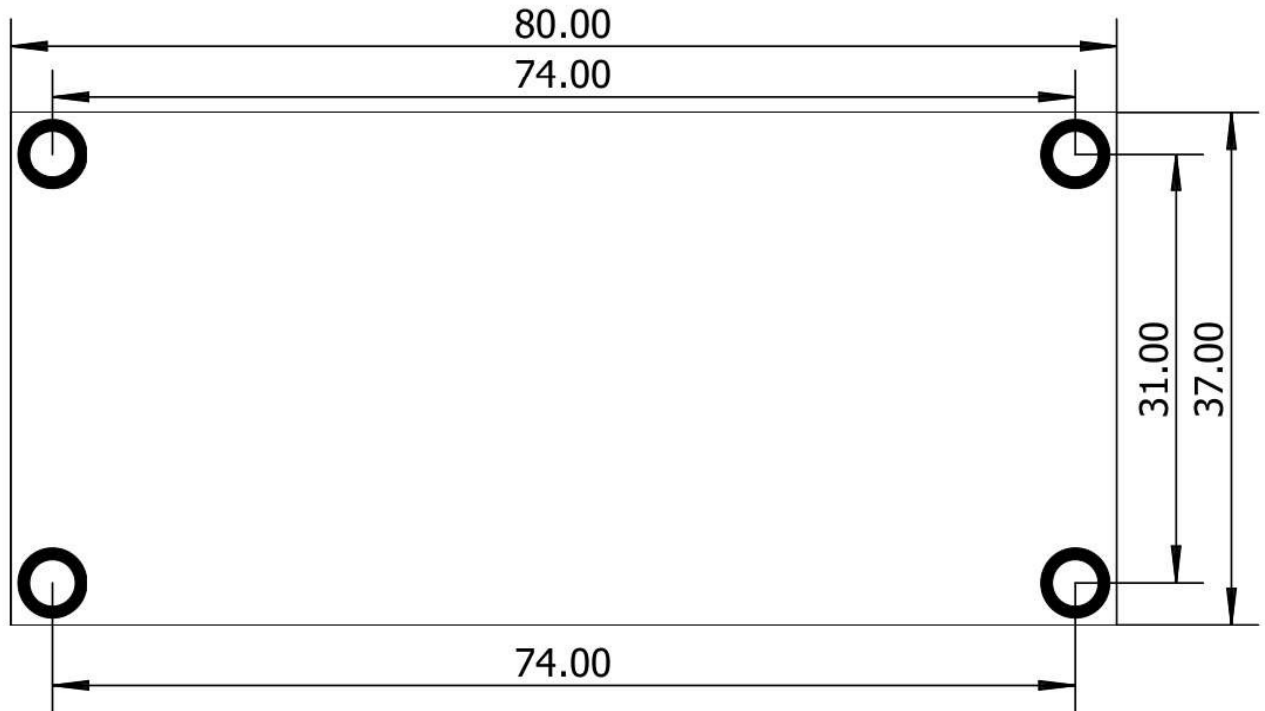
Main Connector

PIN No.	Name	Description
1	RX-	Receive Data-
2	RX+	Receive Data+
3	TX-	Transmit Data-
4	TX+	Transmit Data+
5	V1*	Supply voltage 14 V 200mA. Min 14V. Max 16V.
6	V1*	Supply voltage 14 V 200mA. Min 14V. Max 16V.
7	V2*	Ground
8	V2*	Ground

* Pin 5-6 are internally connected and pin 7-8 are internally connected

Physical Dimension

The total height is less than 20 mm. The PCB holes are 3.2 mm plated holes and connected to ground. Supplied mounting threads are M3.



Transducers

Standard transducers

DeepVision offers several standard side scan sonar transducers. These are:

- TX340L, 340 kHz, 240 mm long piezo array
- TX670L, 670 kHz, 240 mm long piezo array
- TX200L, 200 kHz, 240 mm long piezo array

Custom design transducers

DeepVision also offers custom made transducers. Please contact DeepVision for more information.

Digital Interface

The sonar has a static ip-address **192.168.2.70**.

UDP port 0xFE01 (65025).

Setup the sonar

Do the following steps to config and run the sonar.

1. Set Frequency/Pulse reg (Reg 0x02)
2. Set range reg (Reg 0x01)

When the range reg is set the sonar starts and continuously sends ping packets. To Stop the sonar set range to 0.

To set a register 4 bytes are sent to sonar in one UDP packet.

1. Start of Packet 0xFE
2. Reg
3. Data [15:8]
4. Data [7:0]

The sonar will echo all setup packets. Can be used to verify that sonar has received the packet correctly.

Frequency Register 0x02

Bit [2:0] Frequency

1. "000" 200 kHz
2. "001" 340 kHz
3. "010" 670 kHz

Bit[5:3] Pulse Length

1. "000" Short Pulse
2. "001" Medium Pulse
3. "010" Long
4. "011" Extra Long

Example 670 kHz long pulse

00 010 010 => 0x12

Packet: 0xFE, 0x02, 0x00, 0x12

Range Register 0x01

Bit [15:0] Range in meter [m]

Example 100m

Packet: 0xFE, 0x01, 0x00, 0x64

When range is != 0 the sonar runs.

Ping Packets

When the Range is not 0 the sonar continuously pings and sends Ping packets. The sonar sends one packet per channel (left/right). Always 1000 samples per channel. One Ping packet is always one UDP packet.

The Ping packet packet is always 1004 bytes (UDP payload).

Packet format:

0: 0xFE
1: 0x01
2: ping nr wrapping
3: channel (0 or 1)
4: Data first - Closest to sonar
...
1003 Data last