Orion™ Combi-Sensor Evaluation Boards

December 2014
Orion™ Combi-sensor Evaluation Boards

To be the leading provider of affordable, high performance, high integrity MEMS inertial products and foundry services
Orion™ Combi-sensor Evaluation Boards

Two Orion™ combi-sensor evaluation boards are available:

In-plane CMS300 Combi-sensor Evaluation Board (Part Number – CMS300-02-0302)

Orthogonal CMS390 Combi-sensor Evaluation Board (Part Number – CMS390-02-0305)
Statement of Use and Disclaimer For Silicon Sensing Systems Evaluation Boards

The Evaluation Boards described in this document are development tools and as such are provided solely for the evaluation and assessment by the Purchaser of the suitability of the Silicon Sensing Systems Limited (SSSL) range of Inertial Sensors within the Purchaser’s application. They are not to be used either as an integral or discrete part or component within any Purchaser application or product. SSSL does not warrant the specification or performance of these boards in anyway whatsoever in such circumstances where use by the Purchaser for any application or product is in contravention of the foregoing advice from SSSL.

The Purchaser uses these Evaluation Boards entirely at its own risk and shall fully indemnify SSSL from any and all Purchaser or third party claims, losses, costs, damages and expenses and related liability whether in contract or tort that may arise from such improper use as provided in this statement.

This statement is supplementary to SSSL Standard Terms and Conditions. In the event of any conflict this Statement shall prevail and all other terms shall remain valid and enforceable.
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Orion™ Combi-sensor Evaluation Boards:

Two Part Numbers Available: CMS300-02-0302 (CMS300) and CMS390-02-0305 (CMS390)

Board Size: 34mm x 26mm
Board Mounting: Mounting holes provided
PCB material: 1.6mm FR4, solder resist.
Power Supply: +3V3 and 0V
Analogue outputs: Not Available
Digital interface: SPI Bus.
Dynamic Ranges: 150°/sec and 300°/sec angular rate
2.5g and 10g linear acceleration
CMS300 Evaluation Board
Schematic
CMS300 Evaluation Board

Pad locations

- 21mm width
- 29mm height
- 34mm height
- 26mm width
- 3mm diameter
CMS390 Evaluation Board Schematic
CMS390 Evaluation Board
Pad locations

- Diameter: 3mm
- 3mm Nominal
- See Note: E

Dimensions:
- 21mm
- 29mm
- 34mm
- 26mm
JVD05-02-0100-131 (ICD Document), NOTE 8:

In all message to and from the ASIC a 4-bit CRC (data bits D3:0) shall be added. The CRC polynomial used shall be x4+1. A seed value of “1010” shall be used with a calculation order MSB to LSB. The CRC shall be checked for all i/p messages. If the CRC fails then the message shall be ignored and a SPI Error message output in the next message.

The CRC is calculated using the following calculation:

Where data(31) is the MS bit of the message (transmitted first). crc_seed(3:0) = “1010”.

crc(0) = data(4) XOR data(8) XOR data(12) XOR data(16) XOR data(20) XOR data(24) XOR data(28) XOR crc_seed(0);
crc(1) = data(5) XOR data(9) XOR data(13) XOR data(17) XOR data(21) XOR data(25) XOR data(29) XOR crc_seed(1);
crc(2) = data(6) XOR data(10) XOR data(14) XOR data(18) XOR data(22) XOR data(26) XOR data(30) XOR crc_seed(2);
crc(3) = data(7) XOR data(11) XOR data(15) XOR data(19) XOR data(23) XOR data(27) XOR data(31) XOR crc_seed(3);
CMS3xx Evaluation Boards
Connector Details

Harwin M80-6661042
2mm pitch, right angle, double row, 10-way connector

View looking into the connector

1 = SPI_SEL
2 = SPI_MISO
3 = SPI_CLK
4 = SPI_IN
5 = BIT_OK
6 = RESET
7,9 = CDD*
8,10 = VSS*

* Note: pins 7 and 8 do not require connecting to VDD and VSS respectively as they are connected on the EVB
Contact Details

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