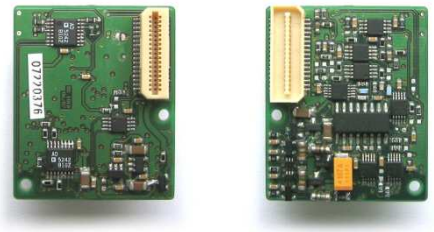

iSense Vehicle Detection Module Datasheet

VDM10

Document history

Version	*Date*	*Changes*
1.0	2008/2/28	Initial version

Contents

List of Figures

1. Overview

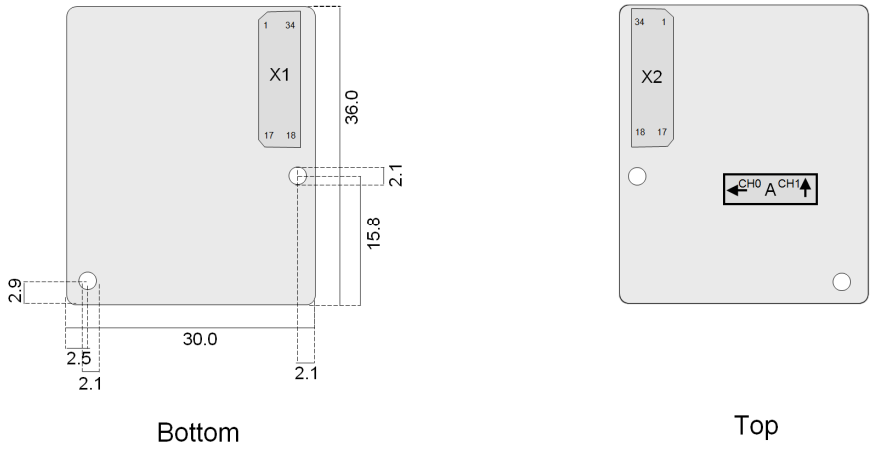

Figure 1: Mechanical information.

The iSense Vehicle Detection Module (VDM10) is intended for detection of dynamic magnetic fields.

The VDM10 is based on the two-axis anisotropic magneto-resistive (AMR) sensor Phillips KMZ52 (component A in Figure 1). It is combined with two cascaded amplifier stages and additional control and compensation circuits. In order to offer a wide detection range of up to 5 meters, the module provides two sensitivities, i.e. the amplification factor of the second amplifier stage can be switched from low gain to high gain mode. The module also provides a de-gaussing circuitry and static magnetic field offset compensation. All three are controlled via I2C commands. In addition, the complete module can be switched on and off by setting the MM_ON pin on the connectors X1/X2 (c.f. Section 1.1).

In combination with an iSense Core Module (CM30x) connected to the VDM10 using the X1/X2 connectors the Vehicle Detection Module can be used to detect large metal objects such as cars moving by. The accompanying software incorporates automatic de-gaussing as well as earth magnetic field and sensor offset compensation for convenient sensing. The C++ driver that is part of the iSense sensor networking and operating firmware provides a convenient API to operate the different hardware components of the Vehicle Detection Module. Hence, module activation de-gaussing, offset compensation and amplifier control are done by simple API calls.

1.1. Connectors X1 and X2

The connectors X1 and X2 on both sides of the Vehicle Detection Module Module are intended for connecting it to other modules such as the iSense Core Module. X1 is of type Panasonic AXN334130S, X2 of type Panasonic AXN434530S [1]. The table below states the pin configuration of X1/X2.

Pin no.	*Function*
1	Reserved
2	Analogue output channel 1
3	Analogue output channel 2
4	GND
5-14	Reserved
15	MM_ON (high=off, low=on)
16	I2C SDA
17	I2C SCL
18	Reserved
19	Reserved
20	GND
21	VCC
22	VCC
23-34	Reserved

2. Specification

2.1. Maximum Ratings

Parameter	*Unit*	*Min*	*Max*
Voltage to all other pins	V	-0.3	4.0
Storage Temperature	° C	10	+40

2.2. Operation

Parameter	*Unit*	*Min*	*Typ*	*Max*
Operating voltage	V		3.3	
Operation temperature	° C	-20.0		+70.0
Current consumption OFF mode	mA		0	
Current consumption operation[1)]	mA	13.43		<30.0
Bandwidth	Hz			1000
Sensitivity (low gain)	mV/(kA/m)		77.3	
Sensitivity (high gain)	mV/(kA/m)		786.2	
Activation time	ms			<180

1) The current consumption depends on the result of the compensation process, i.e. on the magnetic fields the module is operating in. If no compensation at all is required, the module requires the minimum current specified in the above table. Depending on the surrounding static magnectic fields, the current consumption can rise up to the given maximum value.

3. RoHS Compliance

This device meets the requirements of Directive 2002/95/EC of the European Parliament and of the Council on the Restriction of Hazardous Substance (RoHS).

4. Status Information

This data sheet shows the specification of a product in development.

The functionality and electrical performance specifications are target values and may be used as a guide to the final specification. Coalesenses reserves the right to make changes to the product specification at anytime without notice.

5. Ordering Information

Order code	Product
VDM10	iSense Vehicle Detection Module

6. References

[1] NARROW-PITCH CONNECTORS FOR PC BOARDS NARROW-PITCH (0.8mm) CONNECTORS — P8 SERIES — AXN(1/3/4) , online available at http://pewa.panasonic.com/pcsd/product/conn/pdf_cat/p8conn.pdf

[2] Philips KMZ52 Magnetic Field Sensor, online available at http://www.datasheetcatalog.org/datasheet/philips/KMZ52_1.pdf

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