



## MEAS KMA36R PERIPHERAL MODULE

### Digital Magnetic Encoder Sensor Digital Component Sensor (DCS) Development Tools

The KMA36(A) peripheral module provides the necessary hardware to interface the KMA36, A universal magnetic encoder for precise rotational measurement. To any system that utilizes a Digilent Pmod™ compatible expansion ports configurable for I2C communication. The KMA36 sensor feature a system-on chip technology that combines a magnetoresistive element along with analog to digital converter and signal processing in a standard small package. This model can operate from 3.0V to 3.6V, by using Anisotropic Magneto Resistive (AMR) technology, the KMA36 can determine contactlessly the magnetic angle of an external magnet over 360°.

### Performance

- User programmable parameters
- Low power mode
- -40°C to 125°C accuracy: 1°C
- Sleep and automatic wake-up through I<sup>2</sup>C
- Programmable zero position
- Device address hardware configurable
- Operates from 3.0V to 3.6V

### Specifications

- Contactless angle measurement from 0° to 360°
- Programmable resolution up to 13 bits
- I<sup>2</sup>C communication
- Very low hysteresis
- Incremental model
- Programmable zero position
- low power consumption

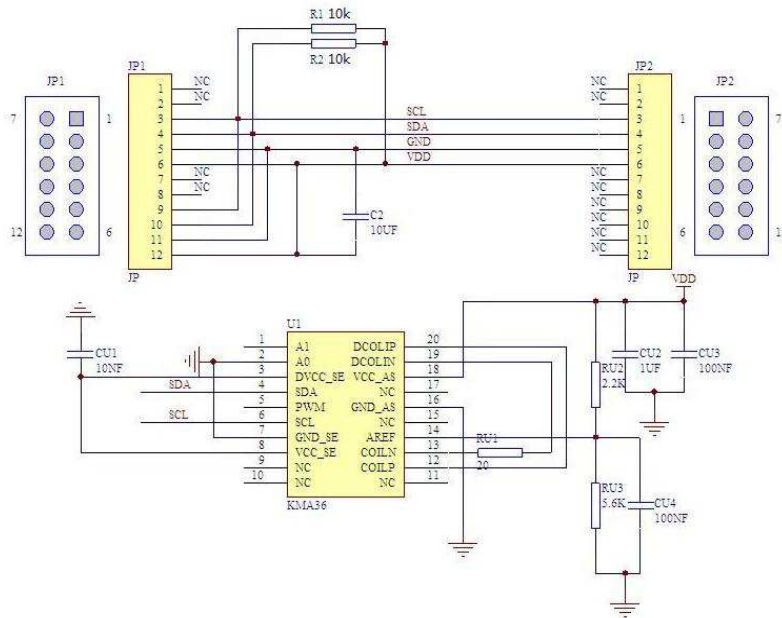
### Features

- 12-pin connector compatible with Digilent Pmod™
- I<sup>2</sup>C interface
- Secondary 12-pin connector allows daisy chain
- FPGA fabric available for download
- µC C code available for download
- Programmable resolution up to 13 bits
- Very low hysteresis
- High accuracy mode

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## Schematic



## Connector Pin Assignments (I<sup>2</sup>C Communications)

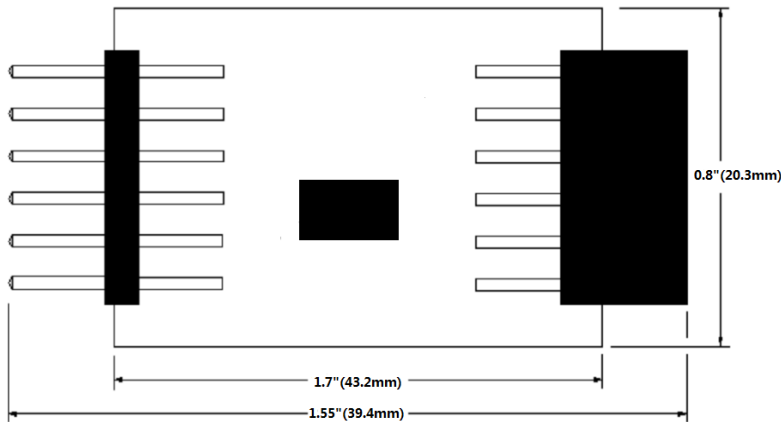
System Plug (Table 1)

Connector J1		
Pin No.	Signal	Description
1	N/C	Not Connected
2	N/C	Not Connected
3	SCL	I <sup>2</sup> C Serial Clock
4	SDA	I <sup>2</sup> C Serial Data
5	GND	Ground
6	Vdd	Power Supply
7	N/C	Not Connected
8	N/C	Not Connected
9	SCL	I <sup>2</sup> C Serial Clock
10	SDA	I <sup>2</sup> C Serial Data
11	GND	Ground
12	Vdd	Power Supply

Expansion Socket (Table 2)

Connector J2		
Pin No.	Signal	Description
1	N/C	Not Connected
2	N/C	Not Connected
3	SCL	I <sup>2</sup> C Serial Clock
4	SDA	I <sup>2</sup> C Serial Data
5	GND	Ground
6	Vdd	Power Supply
7	N/C	Not Connected
8	N/C	Not Connected
9	N/C	Not Connected
10	N/C	Not Connected
11	N/C	Not Connected
12	N/C	Not Connected

## Dimensions



## Detailed Description

### I<sup>2</sup>C Interface

The peripheral module can interface to the host in one of two ways. It can plug directly into a Digilent Pmod™ compatible port (configured for I<sup>2</sup>C) through connector J1, or to other I<sup>2</sup>C boards that have a Digilent Pmod™ compatible expansion connector.

### I<sup>2</sup>C Interface (Daisy Chaining Modules)

Connector J1 provides connection of the module to the Digilent Pmod™ host. The pin assignments and functions adhere to the Digilent Pmod™ standard as shown in Table 1. The J2 connector allows additional Digilent Pmod™ modules to be connected in a daisy-chain fashion. See Table 2.

### External Control Signals

The module operates as an I<sup>2</sup>C slave using the standard 2 wire I<sup>2</sup>C connection scheme. The module is controlled by the host (through the Digilent Pmod™ connector). In cases where one or more of the SCL and SDA signals are driven from an external source, resistors R1, R2 provide pull-up. However, this also increases the apparent load to the external driving source. If the external source is incapable of driving these loads, they could be removed from the board.

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### Ordering Information

Description	Part Number
MEAS KMA36R PERIPHERAL MODULE	DPP401Z000

### Reference Material

- Detailed information regarding operation of the IC:  
MEAS KMA36R Datasheet
- Detailed information regarding the single port mother board driver:  
MEAS KMA36R for MicroZed Driver
- Complete software sensor evaluation kit for the single port mother board:  
MEAS KMA36R for MicroZed Software
- Detailed information regarding the multiple port mother board driver:  
MEAS KMA36R for ZedBoard Driver
- Complete software sensor evaluation kit for multiple port mother board:  
MEAS KMA36R for ZedBoard Software

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