



## KMA36R

### PERIPHERAL MODULE

Digital Magnetic Encoder Sensor

#### General Description

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 Xplained pro compatible expansion ports configurable for I<sup>2</sup>C 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°.

#### 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

- 20-pin Xplained pro compatible connector
- I<sup>2</sup>C interface
- Xplained Pro hardware identification chip
- Atmel Studio 6 Project available for download
- µC C code available for download
- Programmable resolution up to 13 bits
- Very low hysteresis
- High accuracy mode

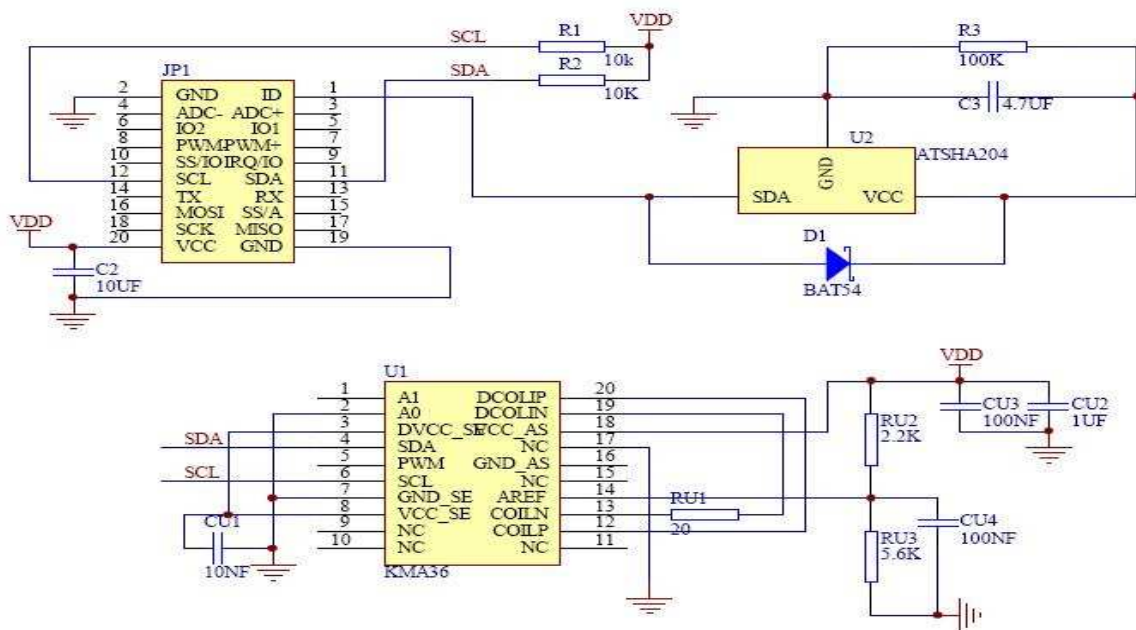
# KMA36R PERIPHERAL MODULE

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## 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

## Schematic



## KMA36R PERIPHERAL MODULE

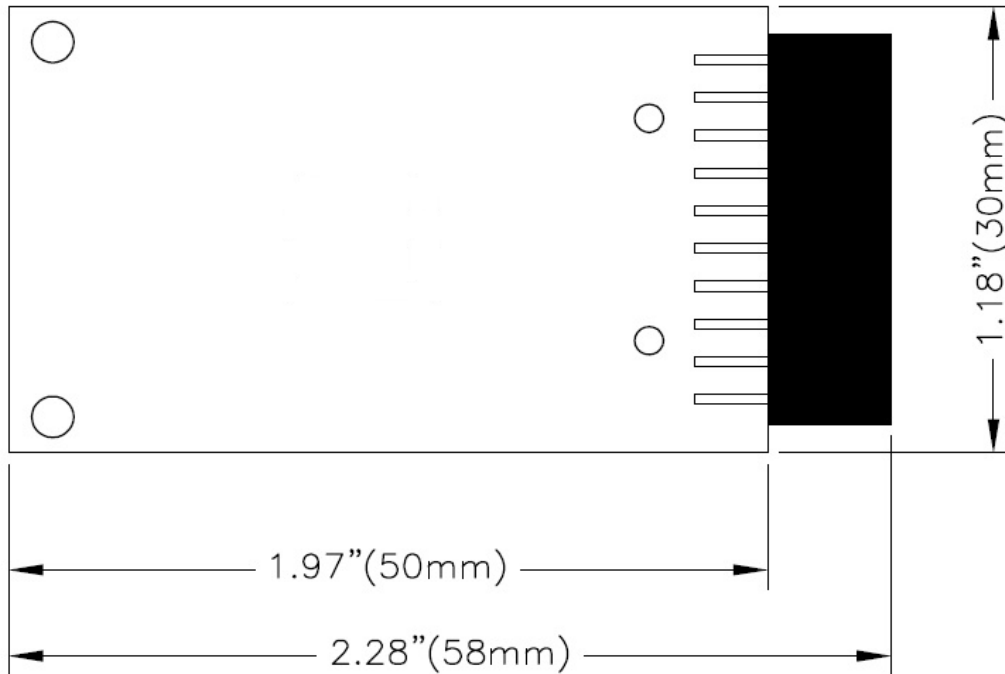
Digital Magnetic Encoder Sensor

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

System Plug (Table 1)

Connector JP1					
Pin No.	Signal	Description	Pin No.	Signal	Description
1	ID	Address	11	SDA	I2C Serial Data
2	GND	Ground	12	SCL	I2C Serial Clock
3	N/C	Not Connected	13	N/C	Not Connected
4	N/C	Not Connected	14	N/C	Not Connected
5	N/C	Not Connected	15	N/C	Not Connected
6	N/C	Not Connected	16	N/C	Not Connected
7	N/C	Not Connected	17	N/C	Not Connected
8	N/C	Not Connected	18	N/C	Not Connected
9	N/C	Not Connected	19	GND	Ground
10	N/C	Not Connected	20	Vdd	Power Supply

### Dimensions(mm)



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### Detailed Description

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

The peripheral module can interface to the host being plugged directly into an Xplained Pro extension port (configured for I2C) through connector JP1

#### External Control Signals

The IC operates as an I<sup>2</sup>C slave using the standard 2 wire I<sup>2</sup>C connection scheme. The IC is controlled either by the host (through the Xplained pro 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 should be removed.

### Reference Material

- Detailed information regarding operation of the IC:  
[KMA36 Datasheet](#)
- Detailed information regarding SAMD2x Driver:  
[KMA36R SAMD2x Driver](#)
- Complete software sensor evaluation kit for Xplained Pro:  
[KMA36R SAMD2x Software](#)

### Ordering Information

Description	Part Number
KMA36R PERIPHERAL MODULE	DPP401A000

#### [te.com/en/products/sensors.html](http://te.com/en/products/sensors.html)

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