

## KDIM-CHIP-1

V1.0.0

**PRELIMINARY DATA**  
**May Change without notice**

### Description

KDIM-CHIP-1 is a Micro-controller based phase angle controller with slow speed SPI or 8 bit analog input. The phase angle control is based on an 'Even Power' algorithm which results in smoother control over the full range. It has be designed to work with 50Hz and 60Hz power supply frequencies by using auto frequency detection on power up.

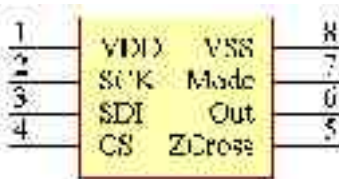
There are two output options available:

1. TRIAC control, this turns the ON at the Leading edge and OFF at the zero cross.
2. IGBT/FET control, this turns ON at the zero-cross and OFF at the lagging edge.

### Pinout

Pin	Name	Description
1	VDD	+5V DC Supply
2	SCK	SPI Serial Clock – Data latched on Low
3	SDI	SPI Serial Data In and Analog Input (Depends on Mode Pin)
4	CS	Chip select – Active Low
5	ZCross	Zero-cross detector – Rising Edge triggered
6	Out	Output to Opto-Isolator TRIAC or IGBT/FET driver – Active Low
7	Mode	Selects Input type – High = SPI Low = Analog
8	VSS	0V DC supply

NOTE: Pinouts not finalized yet



### SPI Mode

For SPI mode to be active the Mode pin must be High on power up.

The SPI input is limited to low speed operation with a Maximum clocking frequency of (TO BE DETERMINED)Hz.

Setting CS Low initiates a new data transfer.

Data is then clocked in when SCK going Low.

8 Bits of data may be transfered. Any additional data is ignored.

CS must be take High for a period of (TO BE DETERMINED) before initiating a new transfer.

The data is output at the zero-cross following a completed data transfer.

(INSERT TIMING DIAGRAM HERE)

(INSERT SPI PROGRAMMING EXAMPLE HERE)

## Analog Mode

For Analog mode to be active the Mode pin must be LOW on power up.

The analog input accepts 0V to 5V DC. 0V turns output OFF, 5V turns output fully ON.

The analog input is checked after each zero-cross and is output at the following zero-cross.

## Auto Frequency Detection

The KDIM-CHIP-1 calculates the time between zero-cross detections on power up. If this time is greater than 9ms then it presumes 50Hz timing, if less than 9ms it presumes 60Hz timing.

Auto-detection may have problems with noisy or unstable AC power supplies. Because of this it is possible to order the KDIM1-CHIP-1 for a specific frequency by adding -50Hz or -60Hz at the end of the part number.

## Sample Circuits

(INSERT SAMPLE CIRCUITS HERE)

## Ordering Information

Ordering format:

KDIM-CHIP-1-[Package]-[Edge Type]-[Frequency]

Package:

P = Plastic DIP-8

S = SO-8 SMD 150Mil

Edge Type:

T = TRIAC (Leading Edge)

I = IGBT/FET (Lagging Edge)

Frequency:

Blank = Auto-detect 50/60Hz

50 = 50Hz

60 = 60Hz

Other = custom frequency (Additional costs apply)

Examples:

KDIM-CHIP-1-P-T = Plastic DIP for Triac control with autodetection.

KDIM-CHIP-1-S-I-50 = SO-8 for IGBT/FET for 50Hz supply.