

# MINI-KAL

## Miniature, Low Cost Electronic Counter

### Features

- UL, CSA Listed, CE Certified
- 6 and 8 Digit models
- PC Board Mountable
- Low Power Consumption
- 10 kHz Count Speed
- Easily Integrated Into OEM Systems
- Add -Subtract (AS Version)



### MINI-KAL1

#### MINI-KAL1AS

##### Description:

The MINI-KAL series of small, easy-to-mount LCD counters can be mounted directly to a PC board, or, with SLIM-KAL, through two screw holes in a panel. They are useful for counting applications where space is tight, and where OEM instrument makers want a pre-designed counter.

The MINI-KAL is a PC board mountable, 6 digit counter which counts up to 10 kHz, and consumes less than 15  $\mu$ A of current. Connections are via four pins on 0.1 inch centers.

The MINI-KAL-DAS is a small 6-digit electronic add/subtract totalizing counter, based on the latest CMOS technology and incorporates a 6-digit 6mm character height, high contrast LCD display.

The MINI-KAL-DAS has been specifically designed to use minimal power—quiescent current less than 5 microamps making the unit ideally suited in low power battery applications. The counter will add and subtract count pulses at input frequencies up to 10 kHz making the unit suitable for use in position, length and distance measuring applications.

### MINI-KAL 1

#### Specifications:

**Voltage:** 3 VDC ( $\pm 0.6$ V)

**Current:** 15  $\mu$ A

**Display:** 6 digit, LCD, 0.2" high

#### Temperature Range:

Operating: +14 to 122°F (-10 to 50°C)

Storage: -14 to 140°F (-20 to 60°C)

#### Signal Inputs:

**COUNT INPUT:** Electronic 10 kHz max. (min. on/off 50 $\mu$ sec) Negative edge triggered, 0.7 V threshold. Max. input 24 VDC

**RESET:** Electronic Negative edge triggered 0.7 V threshold. (min. on/off pulse 20 mS)

**Material:** Clear polycarbonate

**Weight:** 0.25 oz.

### MINI-KAL1AS

#### Specifications:

**Voltage:** 3VDC  $\pm 0.4$ V (VDD)

**Current:** 5 $\mu$ A typical

10 $\mu$ A maximum at 10 kHz

**Display:** 6 digit 0.2" character height black LCD

#### Temperature Range:

Same as MINI-KAL1

#### Signal Inputs:

**COUNT INPUT:** Electronic 10 kHz max. (min. on/off 50 $\mu$ sec) Negative edge triggered, 0.7V threshold, TTL/CMOS compatible.

**DIRECTION:** Electronic input, TTL/CMOS compatible.

Add—logic 1 (VDD)

Subtract -logic 0 (0 to 0.7 V)

**RESET:** Negative edge triggered 0.7V threshold, minimum pulse length 50  $\mu$ S.

**Material:** Clear PETP

**Weight:** 3 oz. (75 grams)

**Sealing:** IP40/DIN40050

**Dimensions:** 27x175x65 mm

### MINI-KAL2AS

#### Description:

The MINI-KAL2 AS add/subtract totalizing counters operate from an external 3VDC supply and feature an 8 digit high contrast LCD display with a character height of .315". The unit is suitable for PCB mounting and is available with or without the front panel reset button. Inputs are provided for count direction and external reset. The counter will add and subtract count pulses at input frequencies up to 10 kHz making it suitable for use in position length and distance measuring applications. With power consumption less than 10 $\mu$ A, typically 5 $\mu$ A, this unit is ideally suited in portable battery powered applications.

**MINI-KAL2AS**

**Specifications:**

**Voltage:** 3VDC ± 0.4V (VDD)

**Current:** 5µA typical, 10µA max. at 10 kHz

**Display:** 8 digit 8mm character height black LCD

**Temperature Range:**

Operating: +14 to 122°F (-10 to 50°C)

Storage: -14 to 140°F (-20 to 60°C)

**Signal Inputs:**

**COUNT INPUT:** Electronic input 10KHz max., negative edge triggered, 0.7V threshold, minimum pulse length 50 µS, TTL/CMOS compatible.

**COUNT INPUT:** Contact closure/open collector input, 30 Hz max, negative edge triggered, 0.7V threshold, minimum pulse length 15 mS.

**DIRECTION:** TTL/CMOS compatible.

Add—logic 1 (VDD)

Subtract—logic 0 (0 to 0.7 V)

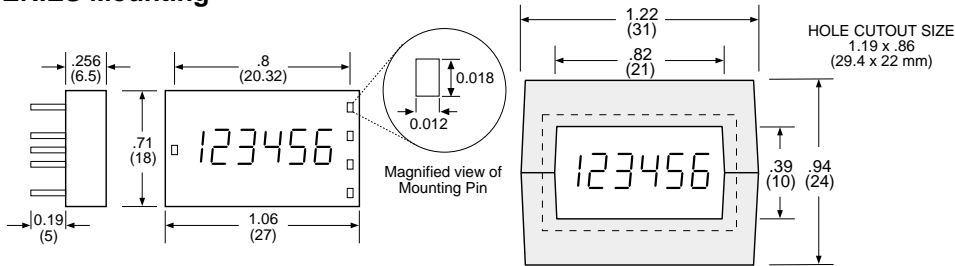
**EXTERNAL RESET:** Contact closure/open collector input, negative edge triggered, 0.7V threshold, minimum pulse length 15 mS.

**Connections:** 6 PCB mounting pins on a 0.1 inch pitch.

**Approvals:** UL File: E135458, CSA File: LR96702, CE Approved

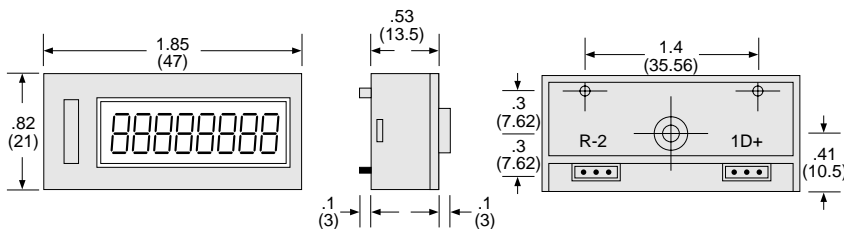
**Mounting:**

**MINI-KAL1 SERIES Mounting**



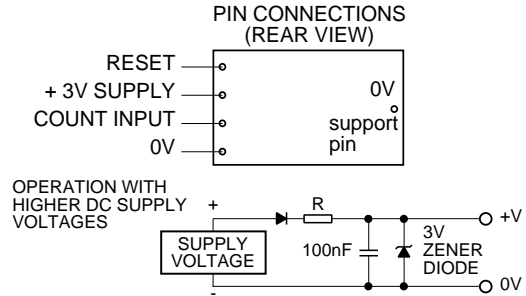
MINI-KAL1 SERIES with KALPM1 panel adaptor clips into panel .050 to .125 thick

**MINI-KAL2AS Mounting**

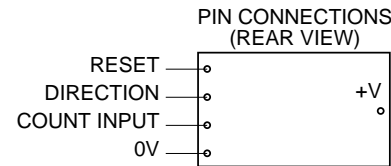


**Wiring:**

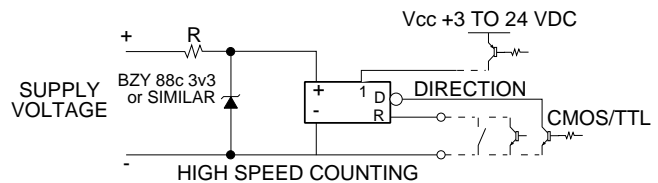
**MINI-KAL1 Hookup**



**MINI-KAL-DASH Hookup**



**MINI-KAL2AS Hookup**



**How To Order:**

- MINI-KAL1 ..... 6 digit adding counter
- MINI-KAL1AS ..... 6 digit add/subtract counter
- KALPM1 ..... MINI-KAL panel mount adaptor
- MINI-KAL2AS ..... 8 digit add/subtrac counter
- MINI-KAL2ASNR ..... Non-reset MINIKAL2AS (non-reset)

\* For no reset, add "NR" to part number