

# SUPER-KAL

## Features

- 6 Digit Display with 9.6mm High Characters
- Supertwist Display Viewable From Any Angle
- Meets NEMA 4 and IP65 Ratings
- EEPROM Memory
- 50 kHz High Speed Input
- 30 Hz Low Speed Input for Contact Closures

## DESCRIPTION

This unit monitors both rate and totalizing count simultaneously. While the display is indicating units per minute (period mode) a "background" totalizer keeps count of events or items. The ratemeter function can operate in either Period or Gated mode. The display indicates the mode and whether the multiplying or dividing prescaler is in use. (Totalizer is not available when the ratemeter is in Gated mode).

A push-button on the front panel can toggle the display between rate and count readings and is also used to reset the count (by holding it pressed for 3 seconds). Mode selection, prescaling and decimal point positioning are all configured in programming which is carried out using the two push-buttons on the front panel.

The operating voltage can be selected by moving a jumper on the back of the unit.

## SPECIFICATIONS

### Display

6-Digit Supertwist, 9.6mm characters. Locatable decimal point to 0, 1, 2 or 3 places of decimals. Leading zero blanking.

### Annunciators

PROGRAM (mode), PERIOD or GATED (modes), TOTALIZER, MULTIPLIER or DIVIDER (prescalers).

### Ranges

Totalizer: 0-999999 with roll over to 0.

Period mode Measurement: 3-19,999 PPM (1/20Hz-333.3Hz).

**Gated mode Measurement:** 0-50kHz.

**Gated Mode Timebase:** 0.01-9.999S adjustable in 1mS intervals.

### Accuracy

Both Gated and Period modes:  $\pm 1$  least significant digit or 0.18% whichever is the greater.

### Prescalers

Period Mode Divider: 1-9999

Totalizer Divider: 1-9999

Totalizer Multiplier: 0.01-9.999 in 0.001 increments

### Program and Data Security

Program disable input allows authorized personnel only to change program. Internal EEPROM retains program indefinitely after power loss.

## Combined Totalizer and Ratemeter with Scaling



### Approvals: CE Approved

### Factory Default Settings

Unit adopts Period mode on power up

Annunciators: PERIOD annunciator only

Period Mode Divider Prescaler: 1

Gated Mode Timebase: 1 second

Totalizer Divider Prescaler: 1

Decimal places: 0

### Low Speed (Contact closure) Input

30Hz maximum frequency. 0.7V threshold, 15mS minimum closure time. Negative edge triggered.

### High Speed (Electronic) Input

50kHz maximum frequency. Logic 0: <0.7V DC, logic 1: >2.4V DC. TTL/CMOS compatible. Maximum input 18V. 10 $\mu$ S minimum pulse length. Negative edge triggered.

### Dimensions

Front 72mm x 36 mm. Depth 32mm (excl. connector)

Panel Cutout

69mm x 33 mm  $\pm$  0.2mm.

### Power Supply

Measurement function: 10-30VDC 8mA

With Backlight 12V or 24VDC @ 100mA or 50mA.

### Operating temperature

-10°C to +60°C

### Storage temperature

-10°C to +70°C

### Housing

Black die-cast aluminium

### Mounting

Panel mounting using supplied clip

**Sealing** IP65/NEMA4 using gasket supplied

## FUNCTIONS and MODES

**GATED MODE** (Frequency) utilizes a variable time base and counts the number of pulses occurring within the time frame (number of pulses through the "gate").

**PERIOD MODE** (RPM) derives its output by computing the reciprocal of the time period measurement between successive pulses.

**TOTALIZER** function. The unit operates as a totalizing up counter when the Ratemeter is in Period Mode.

Mode selection prescaling and decimal point positioning are carried out in programming mode (see next page).

### MODE APPLICATIONS

Period mode is suitable for relatively slow events such as items passing on a conveyor belt. An application which uses the dividing prescaler is measurement of shaft rotation by counting the passing teeth on a gear. If the gear wheel has 64 teeth, set the Period mode divider prescaler to 64 and the unit displays rate in revolution/min.

Gated mode is for high speed electronic inputs and will measure frequency up to 50kHz.

NOTE: Positioning of the decimal point allows the user to display Period or Gated measurements in chosen engineering units. A 100Hz frequency will show as 100 when there is no decimal point but as 1.00 if two places of decimals are selected.

### PROGRAMMING

To enter programming press the recessed Program button on the front panel using a ball point pen or similar. The PROG annunciator appears on the display. Only the two front panel buttons are used for programming.

The Reset button changes the parameter (number of decimal places, increments the displayed digit, toggles between available options etc.).

The Program button accepts the currently displayed value or function and continues to the next step in the sequence.

The parameters which appear on the display during programming are those which were set up at the preceding programming session. You can use this facility to review the settings by entering programming and going through the sequence again.

If a time base or multiplier prescaler less than 0.01 is entered, the unit will default to 0.01 on exit from the programming mode. The programming sequence is shown in the illustration.

When you press the Program button to accept the last parameter in the programming sequence, the unit exits from the program mode and adopts the mode which you selected at step 1.

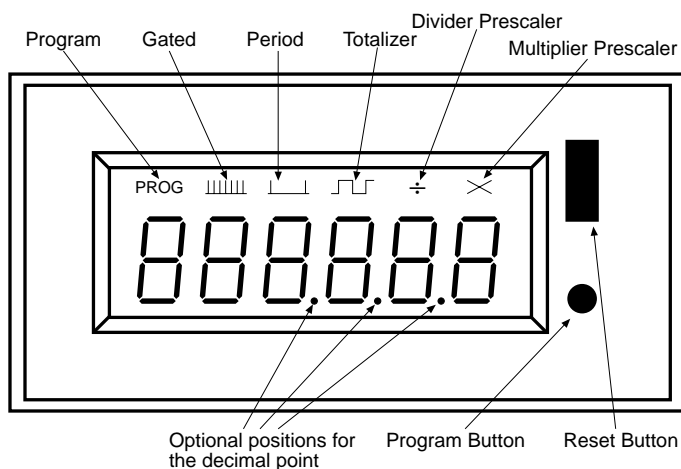
### OPERATING

To toggle the display between the totalizer count and the Period mode rate measurement, press the Reset button on the front panel. (Totalizer is not operating in Gated Mode).

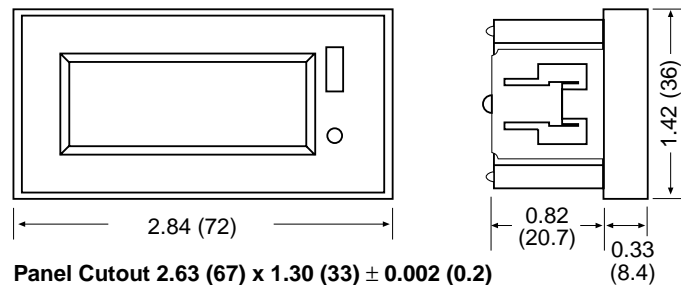
To Reset the totalizer count to zero press Reset and hold it for 3 seconds.

The Reset function can be disabled in the programming sequence.

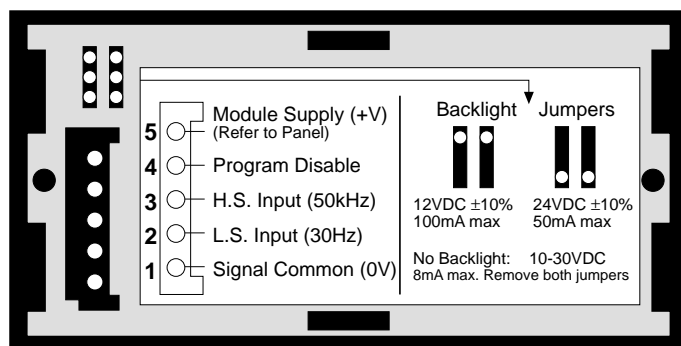
### ANNUNCIATORS



### DIMENSIONS



### CONNECTIONS



### HOW TO ORDER:

- SKAL1 ..... Standard
- SKAL2 ..... With Backlight