V437-0000 (no options)
V437-1000 (2 relays, rate or count)
V437-2000 (4-20mA output)
V437-3000 (4-20mA and 2 relays, rate or count)

VISIPAK™ V437

Frequency/Pulse Input, Rate Indicator/ Totalizer/Batch Controller

Provides a Digital Display of Rate or Totalized Count from a Frequency or Pulse Input

- Field Configurable Input Accepts Pulse, Open Colletor, Switch Closure, TTL or Square Wave
- 6 Digit Display for Counts up to ±999999
- 4 Visual Alarm Points with Front Panel LED Status
- Programmable 11 Point Linearization and Peak Hold Functions
- NEMA 4 Front Panel
- Isolated 12V and 24V Excitation Source
- Optional 2 Relay Output & 4-20mA Transmitter Output

Description

The V437 is a 1/8 DIN programmable, frequency or pulse input LED indicator which displays either a totalized count or the pulse rate, complete with scaling k-factor function.

The programmable k-factor for pulse scaling ensures that the display can be configured to show the preferred engineering units (e.g Gallons, GPM, Barrels, BPD, ppm, Hz, etc.) as they relate to the number of pulses. Additionally, peak-hold, low flow cut-off, and 11 point linearization functions are also included.

Four visual setpoint alarms are annunciated via individual front panel LEDs and are included as standard on the unit. Two can be programmed to alarm on rate limits and two can be programmed to alarm on a specific count or total, complete with delays and offsets.

Two form C relays are available as optional outputs for the setpoints; either two for rate or two for totalized count. The rate alarms can be configured as high or low, failsafe or non-failsafe. Each rate setpoint has a 100% adjustable deadband (or reset point) which can be effectively used in on/off control applications or as a latching alarm.

The totalized count alarms can be configured to trip at an absolute count or one can be programmed to trip at an offset count (e.g., setpoint #1 trips 10 counts before setpoint #2) for applications where
batch size varies. Additionally, the Priority Batch Programming feature allows quick access to the setpoints by holding the ENTER button down for three seconds.

An isolated 4-20mA transmitter output that follows the rate input is also available as an option, with or without the two relays.

The V437 accepts pulse, open collector, switch closure, TTL or square wave frequency inputs and displays the rate or the totalized count. The display can alternate between rate and count every ten seconds. There is an isolated, field configurable 12V or 24V excitation source to power open collector and contact closure transducer inputs.

Field configuration of the input range, alarm function, and analog transmitter output scaling is simple. The indicator is factory calibrated to rated accuracy and can be field adjusted as necessary.

Terminals are provided for remote alarm acknowledgment and remote count reset.

A lockout jumper is used to limit access to the configuration functions. The unit can be programmed to display only those variables needed for operator use.

Application

The V437 is ideal for indication, control and alarming of any pulse or frequency signals. It can be scaled to display whatever process flow, rate, speed or counted quantity is desired.

The peak hold and setpoint alarms can be used for flow and container filling applications. Alarms are useful as annunciators for critical process variables such as excessive motor speed or low coolant flow.

The highly visible 0.56 inch, eight-segment LEDs provide a clear reading of the measured variable. Constructed to withstand corrosion and moisture, the NEMA 4X rated V437 can be used in most industrial control panels under harsh environmental conditions.

The field configurable design and wide selection of scaling and control functions makes the V437 an excellent choice as a standard totalizer, batch controller, rate indicator and alarm. The versatility of the V437 makes it a cost effective solution since it incorporates many indicator and controller functions in a single display.

Program the jumper selection array and switch S1 for desired input and excitation per Table 1 below. The jumper array is located at the rear of the instrument, next to the screw terminal block. Remove jumper JP2 to disable lockout feature.

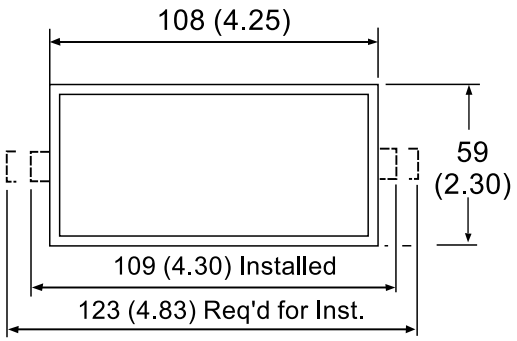
Table 1: Jumper Settings

Function	Jumper				
	JP1	JP2	JP5 (1-2)	JP5 (2-3)	S1
mV Pulse Input			OFF	ON	mV
5V Pulse Input			ON	OFF	V
12V Pulse Input			OFF	ON	V
12VDC Excitation	ON				
24VDC Excitation	OFF				
Lockout Features		ON			

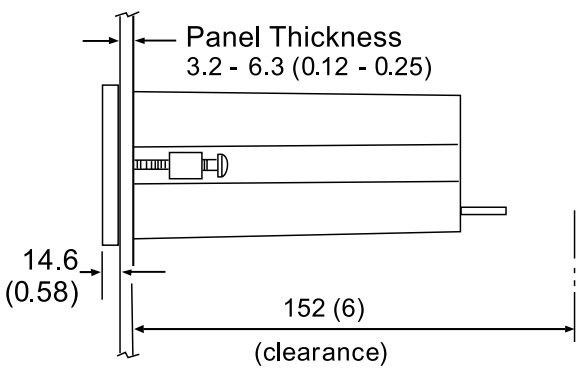
Dimensions

Dimensions in millimeters (inches)

Front View



Side View



Notes:

1. Panel cutout required: 45mm x 92mm (1.77" X 3.62") 1/8 DIN
2. Panel thickness: 3.2mm - 6.3mm (0.12" - 0.25")
3. Allow 152mm (6 inches) behind the panel
4. Weight 16oz. (454g)

Model V437 Wiring Diagrams

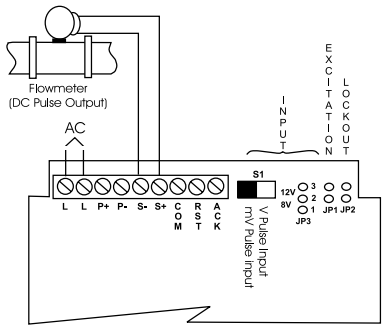
Frequency/Pulse Input, Rate Indicator/Totalizer/Batch Controller

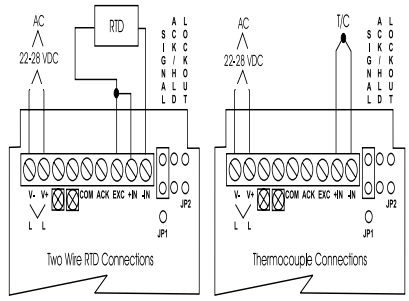
Wiring Instructions

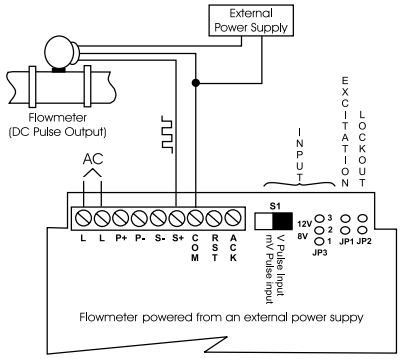
1. All field connections to be made with insulated copper wire, either solid or stranded. Tighten all screw terminals to 7 in/lb. (0.8Nm). Strip length = 1/4 in (7mm). **DO NOT** pre-treat wire with solder.

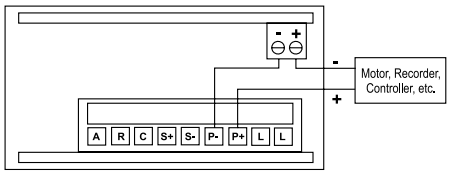
2. **Terminals L & L:** Use AWG #12-18 wire, 600 volt, 60°C. Only one wire to each terminal.

3. **Terminals P+, P-, S-, S+, COM, RST & ACK:** Use AWG #12-22 wire, 150 volt, 60°C. If using AWG #20 or smaller wire, up to 2 wires can be connected to each terminal. If using AWG #18 or larger wire, only 1 wire can be connected to each terminal.

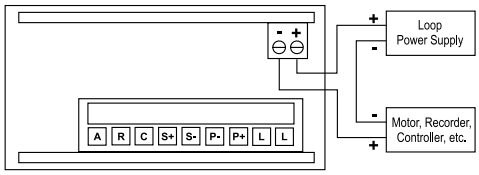








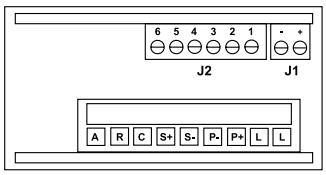
4-20mA output signal powered by internal 24V power supply.



4-20mA output signal powered from an external 24V power supply.

Terminal Assignments

PIN	Function	Screw Terminal Block
1	Transmitter	J1
2	Transmitter	J1
1	Relay #1 Common	J2
2	Relay #1 NC	J2
3	Relay #1 NO	J2
4	Relay #2 Common	J2
5	Relay #2 NC	J2
6	Relay #2 NO	J2



Notes:

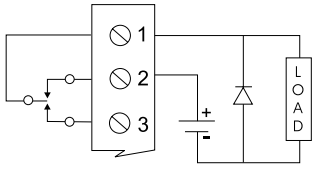
1. External alarm acknowledgment terminals (ACK and COM) are located on the meter main board.

2. In the alarm condition, the NC contact is connected to common in the failsafe mode

Switching Inductive Loads

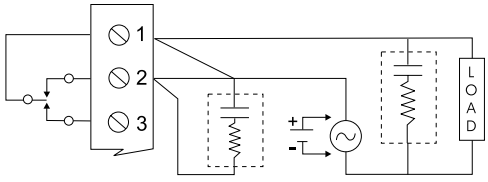
To minimize the effect of electrical noise and also prolong the life of the relay contacts, the use of a suppression network is recommended. RC networks can be purchased as an assembly. Refer to the following circuits for RC network assembly and installation:

Low Voltage DC Loads



Use a diode with a reverse breakdown voltage two to three times the circuit voltage and forward current at least as large as the load current.

AC & DC Loads



Choose R and C as follows

R: 0.5 to 1 Ohm for each volt across the contacts

C: 0.5 to 1 microfarad for each 1A through closed contacts

Notes:

1. Use connectors rated for 240 VAC.

2. Snubbers may affect load release time of solenoid loads, check to confirm proper operational mode.

3. Install the RC network at the V437's relay screw terminals. An RC network can also be installed across the load. Experiment for best results.

Specifications

BASIC METER

Frequency Inputs:

Field selectable: Pulse or Square Wave 0-5V or 0-12V @ 30kHz;TTL; Open Collector 4.7k Ohms pull up to 12V 30kHz; Switch Contact 4.7k Ohms pull up to 12V @40 Hz. 1Hz minimum input

Low Voltage/Mag Pickup (Isolated):

Sensitivity: 125mV p-p

Hysteresis: 30mV

Calibration:

Can be calibrated using K-factor scaling, internal calibration or by external calibration signal

Output Power:

Field selectable, isolated, 12VDC @ 50mA for sensor supply, or 24VDC @ 20mA regulated ±5%, noise less than 10mVpp. Max. loop resistance of 1200 Ohms

Accuracy:

±0.1% of full scale

Minimum input Span:

2.0Hz between points

Display:

6 digit, 0.56" (14.2mm) high efficiency red LED. Rate: 0 to 29,999(0) with selectable extra zero. Total: 0 to 999,999.

Automatic lead zero blanking

Alternating Display:

Display can be programmed to alternate between rate and total every 10 seconds.

Power:

115VAC ±10%, 50/60Hz,10VA

Totalizer:

Calculates total based on rate and field prog. multiplier to display total in any engineering units

Total Reset:

Via front panel ENTER button, external contact closure at terminals RST and COM, automatically via user selectable preset value #2.

Peak Hold:

Captures the peak rate and displays it via the front panel ENTER button

Peak Hold Indication:

Front panel flashing "R" LED.

Low Flow Cutoff:

1 count to 100% F.S., user selectable. To disable low flow cutoff, program cutoff value to zero

Roll Over:

Totalizer "rolls over" when display exceeds 999,999 or preset value. Relay status reflects display.

Lockout:

Jumper at rear of instrument restricts modification of calibration values

Temperature/Humidity:

Operating range: 0 to +65°C

Storage range: -40 to +85°C

RH: 0 to 90%, non-condensing

Front Panel/Enclosure:

NEMA 4X, panel gasket provided1/8 DIN, high impact plastic, UL 94V-0

Connections:

Removable screw terminal block (provided)

Input Impedance:

Pulse Input: Greater than 300k ohms @ 1kHz Open Collector/ Switch Input: 4.7k Ohms pull-up resistor to 12V

RELAYS (OPTIONAL)

Rating:

2 SPDT (form C); rated 2Amp @ 30VDC or

2 Amp @ 250VAC resistive load; 1/14 HP @ 125/250VAC for inductive loads

Totalizer Presets:

Relays #1 and #2 are assigned to total or rate and can be programmed anywhere in the range of the meter; relays trip when total exceeds preset value and reset when total is reset to zero. #2 preset is user programmable to reset total to zero when preset value is reached. A delay of between 1 and 999 seconds can be programmed before relays #1 and #2 reset.

Preset Value Tracking:

Relay #1 can be programmed to trip at any point below relay #2 preset value. If relay offset mode is selected relay #1 will always trip at a programmed offset value before relay #2 trips, e.g., if the relay offset is set at 10 then relay #1 will trip at 10 counts before relay #2.

TRANSMITTER (OPTIONAL)

Calibration Range:

The transmitter output (4-20mA) can be calibrated so that a 4mA output is produced for any rate displayed on the meter. The 20mA output can correspond to any other (larger or smaller) number displayed on the meter. However, best results are obtained with a 501 minimum count difference between the 4 & 20mA output displays.

Output Loop Resistance:

24VDC, 10 Ohms min. 500 Ohms max.;

35VDC max (ext.), 600 Ohms min. 1k Ohms max.

Accuracy:

±0.1% F.S., ±.004mA

Isolation:

500VDC or peak AC, input-to-output or input/output-to-powerline

External Loop Power Supply:

35V max

Ordering Information

Specify:

1. Model number:
   - **V437-0000** (no options)
   - **V437-1000** (2 relays, rate or count)
   - **V437-2000** (4-20mA output)
   - **V437-3000** (4-20mA and 2 relays, rate or count)
2. Power: 115VAC (standard)
3. Optional Factory Configuration, specify **C620** with the desired configuration information.

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Factory Assistance

For additional information on calibration, operation and installation contact our Technical Services Group:

703-669-1318

actionsupport@eurotherm.com