

VISIPAK™ V430

MODEL



Benefits

- Field Configurable Input
Accepts 4 to 20mA, 1 to 5V, 0 to 5V, or 0 to 10V Signals
- 6 Digit Display for Counts up to ± 999999 , Independent Scaling for Both Rate and Total
- Programmable Square Root, 11 Point Linearization and Peak Hold Functions
- 4 Visual Alarm Points with Front Panel LED Status Indication
- Optional 2 Relay Output and 4-20mA Transmitter Output
- Isolated 24V Excitation Source
- NEMA 4X Front Panel Three Year Warranty



Analog Input, Rate Indicator/Totalizer/ Batch Controller

Provides a Digital Display of Rate or Totalized Count from a DC Current or Voltage Input

DESCRIPTION

The VisiPak model V430 is a programmable, analog input LED indicator which displays either rate or the totalized count of the rate. The time base of the rate can be set for seconds, minutes, hours (e.g. pulses per second, gallons per minute, or barrels per day) and the totalization factor can be set for conversion of rate units to totalization units (e.g. gallons per minute rate converted to totalized barrels).

The VisiPak housing provides a NEMA 4X water tight front panel that fits 1/8 DIN cutouts. Additionally, square root, peak hold, low flow cut-off, square root and 11 point linearization functions are also included.

The four visual setpoint alarms are annunciated via individual front panel LEDs and come 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 first two 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 points) 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 or off-set count (e.g. set point #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 is also available.



*Protecting the
Integrity of
Industrial
Process Signals*



The V430 accepts 4-20mA, 0-20mA, 0-5V, 1-5V, 0-10V analog inputs and displays the rate or the totalized count, and can alternate between the rate and count display on a ten second cycle. The unit has an isolated 24V excitation source to power a two-wire transmitter or the optional 4-20mA output.

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

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

A lockout jumper is used to limit access to the configuration button functions. The user can program the lockout function to display only those variables needed for operator use.

APPLICATION

The V430 is ideal for indication, control and alarming of any analog rate signal. The input range can be scaled for display as required.

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 unit accepts 11 user entered point-pairs for sensors with non-linear inputs. The square root function resolves flow from a differential pressure transducer across a orifice plate.

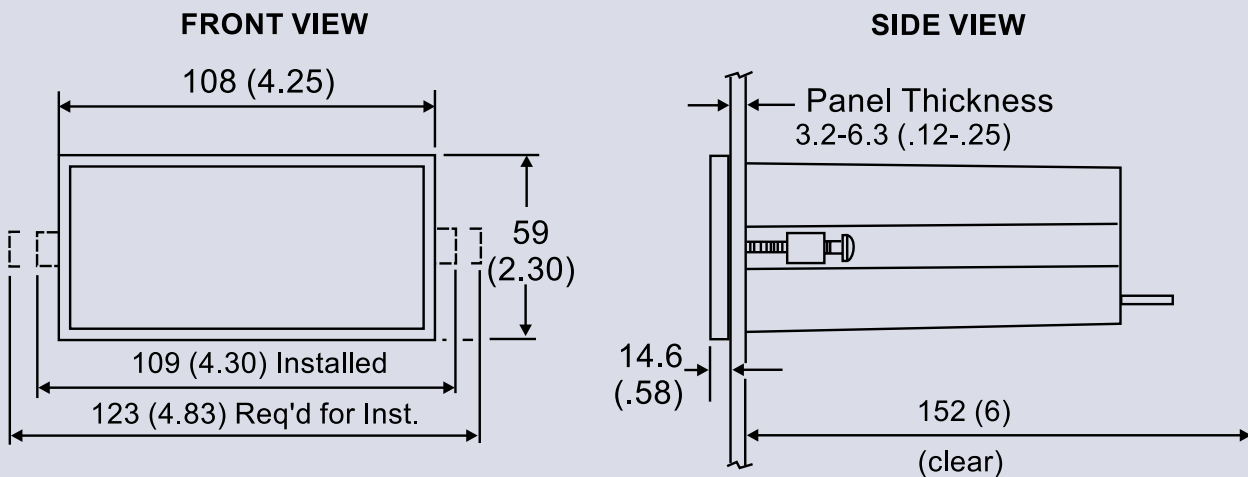
In all applications the highly visible 0.56 inch, eight-segment LEDs provide a clear and accurate reading of the measured variable. Easily installed, and constructed to withstand corrosion and moisture, the NEMA 4X rating allows the V430 to be used in most

industrial control panels under harsh environmental conditions.

The easy, field configurable design and wide selection of scaling and control functions makes the V430 an excellent choice as a standard totalizer, batch controller, rate indicator and alarm. The versatility of the V430 makes it a good and cost effective solution.

DIMENSIONS

Dimensions are in millimeters (inches).



MOUNTING DIMENSIONS

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 16 oz, (454 g)

SPECIFICATIONS

Basic Meter

Inputs	Field selectable: 4-20mA, 0-20mA, 0-5V, 1-5V, 0-10V.
Calibration Range	4mA (1V) input may be set anywhere in range of the meter. 20mA (5V) may be set anywhere above or below 4mA (1V) input.
Loop-Power	Isolated, up to 20 mA at 24VDC regulated $\pm 5\%$, noise less than 10mVpp. Max. loop resistance of 1200W. Use to power either external transmitter or 4-20mA output signal.
Linear Input Accuracy	0.05% of calibrated span, ± 1 count.
Square root Extraction Accuracy	$\pm 0.1\%$ F.S. ± 1 count from 10-100% of flow, $\pm 1\%$ F.S. (0-10% flow).
Minimum Input Span	1.6 mA between points.
Input Impedance	Voltage ranges; greater than 300K Ω . Current ranges; 100 Ω .
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 may be programmed to alternate between rate and total every 10 seconds.
Power	AC power: 115VAC $\pm 10\%$, 50/60 Hz, 10VA.
Totalizer	Calculates total based on rate and field programmable multiplier to display total in engineering units.
Total Reset	Via front panel ENTER button, external contact closure at terminals RST and COM, or 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.
RollOver	Totalizer "rolls over" when display exceeds 999,999. 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 provided/1/8 DIN, high impact plastic, UL 94V-0.

Connections Removable screw terminal block

Relays (optional)

Rating 2 or 4 SPDT (form C); rated 2Amp @ 30VDC or 2 Amp @ 250VAC resistive load; 1/14 HP @ 125/250VAC for inductive loads.

Totalizer Presets: 2 Relays #1 and #2 are assigned to total and may 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 programmed offset value before relay #2 trips, eg., if the relay offset is set at 10 then relay #1 will trip at 10 counts before relay #2.

Rate Relays #3 & #4 assigned to rate, any combination of high or low alarms.

Rate Alarm Deadband 0-100% of full scale, user selectable.

Transmitter (optional)

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

Output Loop Resistance 24VDC, 10 Ω Min. 600 Ω Max.; 35VDC Max. (external), 600 Ω Min. 1000 Ω Max.

Accuracy $\pm 0.1\%$ F.S., ± 0.004 mA

Isolation 500VDC or peak AC, input-to-output or input/output-to-power line.

External Loop-Power Supply 35Vmax.

ORDERING INFORMATION

Specify:

1. Model number:

- V430-0000 (No Options),
- V430-1000 (2 relays, count),
- V430-1R00 (2 relays, rate),
- V430-2000 (4-20mA output),
- V430-3000 (4-20mA and 2 relays, count)
- V430-3R00 (4-20mA and 2 relays, rate)

2. Power:

115VAC (standard)

3. Optional Factory Configuration

Specify C620 with the desired configuration information.

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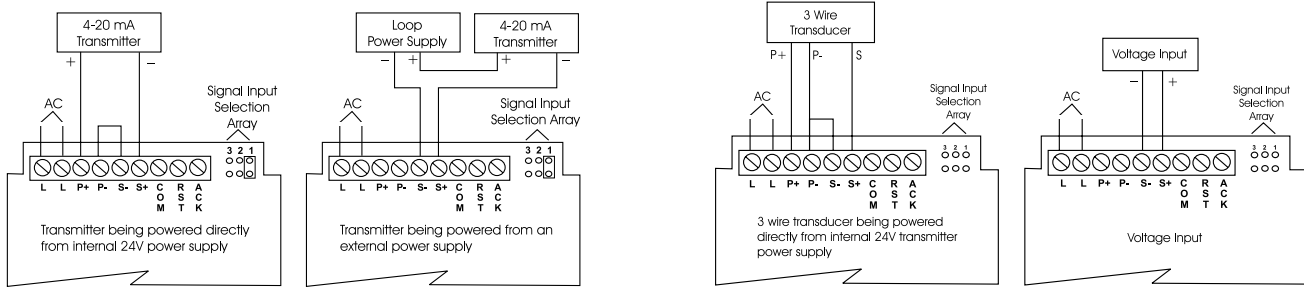


DALIAN ACTION INSTRUMENTS

Technical Bulletin

Wiring Diagrams, Model V430

Analog Input, Rate Indicator/Totalizer/Batch Controller

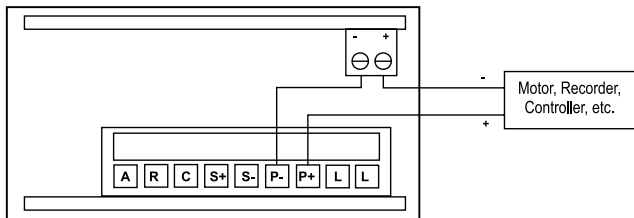


The jumper array is located at the rear of the instrument, next to the screw terminal block. Remove jumper J3 (if installed) to disable Lockout feature.

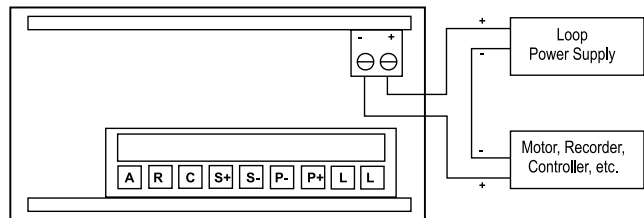
Input Signal	Jumper 1:	Jumper 2:
1-5, 0-5 V	OFF	OFF
0-10V	OFF	ON
0-20, 4-20mA	ON	OFF

WIRING INSTRUCTIONS

- 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.
- Terminals L & L:** Use AWG #12-18 wire, 600 volt, 60°C. Only one wire to each terminal.
- 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 may be connected to each terminal. If using AWG #18 or larger wire, only 1 wire may be connected to each terminal.

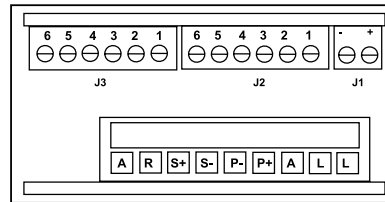


4-20mA output signal being powered by V430's internal 24V power supply.



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

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 #1 Common	J2
5	Relay #1 NC	J2
6	Relay #1 NO	J2

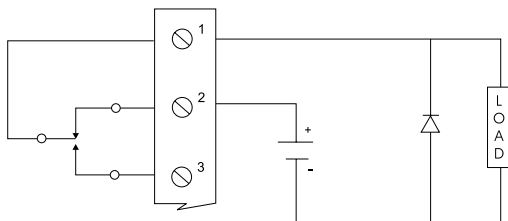


Notes:

- Alarm acknowledgment terminals (ACK and COM) are located on the meter main board.
- In the alarm condition, the NC contact is connected to common in the failsafe mode.
- J2 Terminals are for total relays and J3 Terminals are for Rate relays.

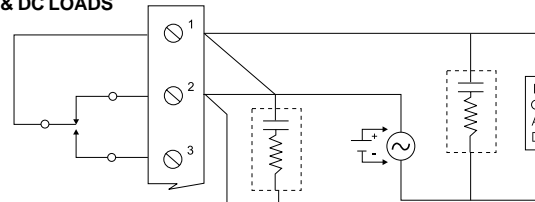
SWITCHING INDUCTIVE LOADS

Switching inductive loads, even quite small loads, can generate sufficient electrical noise to disrupt the operation of the V430. To minimize the effect of electrical noise, and also prolong the life of the relay contacts, the use of suppression is recommended. This suppression can be obtained with RC networks assembled by the user or purchased as a complete assembly. Refer to the following circuits for RC network assembly and installation:



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 1Ω for each volt across the contacts
- C: 0.5 to 1 microfarad for each 1A through closed contacts

Notes:

- Use connectors rated for 240 VAC.
- Snubbers may affect load release time of solenoid loads, check to confirm proper operational mode.
- Install the RC network at the V430's relay screw terminals. A RC network may also be installed across the load. Experiment for best results.