V430-0000 (no options)
V430-1000 (2 relays, rate or count)
V430-2000 (4-20mA output)
V430-3000 (4-20mA and 2 relays, rate or count)

VISIPAK^{tm} V430

Analog Input, Rate Indicator/ Totalizer/Batch Controller

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

- Field Configurable Input: 4-20mA, 1-5V, 0-5V, or 0-10V
- 6 Digit Display for Counts to ± 999999
- Independent Scaling for Rate & Total
- Programmable Square Root, 11 Pt Linearization & Peak Hold Functions
- NEMA 4 Front Panel
- Optional 2 Relay Output & 4-20mA Transmitter Output
- Isolated 24V Excitation Source

Description

The V430 is a programmable, analog input LED indicator which displays either rate or the totalized count of the rate. The VisiPak housing provides a NEMA 4X water tight front panel that fits 1/8 DIN cutouts. The time base of the rate can be set for seconds, minutes, or 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). 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 point) which can be effectively used in on/off control applications or as a latching alarm. An isolated 4-20mA transmitter output that follows the rate input is also available.

The totalized count alarms can be configured to trip at an absolute or 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.

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 both remote alarm acknowledgment and remote count reset.

A lockout jumper is used to limit access to the configuration buttons. The lockout function can be used 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.

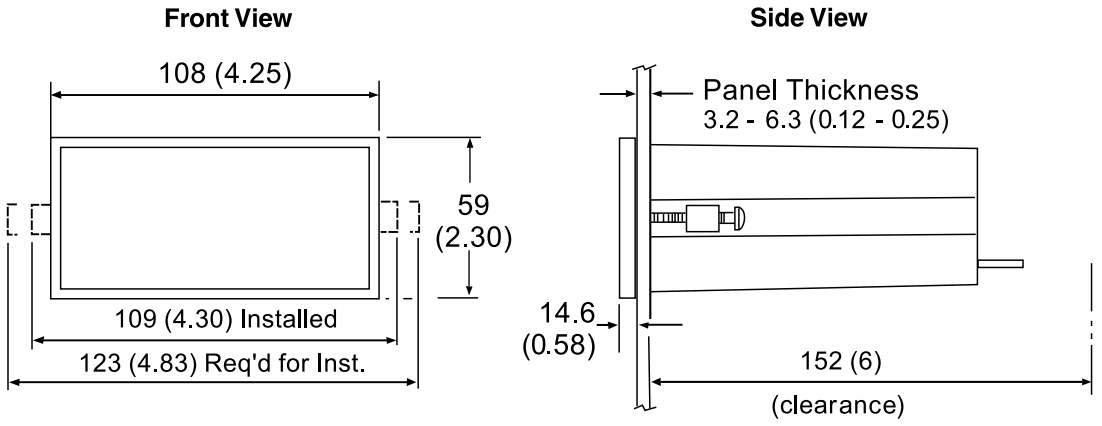
The unit accepts 11 user entered point-pairs for sensors with non-linear inputs. The square root function resolves flow from a differential pressure transducer across an orifice plate.

In all applications the highly visible 0.56 inch, eight-segment LEDs provide a clear reading of the measured variable. The NEMA 4X rating allows the V430 to be used in most industrial control panels under harsh environmental conditions.

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

Dimensions

Dimensions in millimeters (inches)



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)

V430 Wiring Diagrams
Analog Input, Rate Indicator/Totalizer/Batch Controller

Wiring Instructions

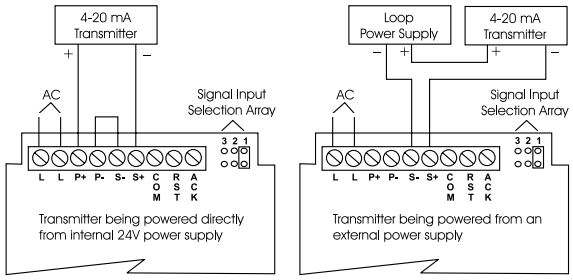
1. All field connections to be made with insulated copper wire, either solid or stranded. Tighten all screw terminals to 7 in/lb. (0.8Nm). Strip length = 1/4 in (7mm). **DO NOT** pre-treat wire with solder.

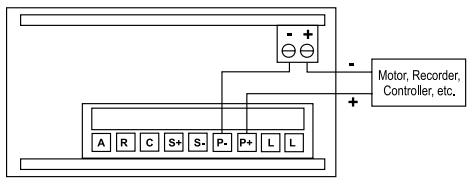
2. **Terminals L & L:** Use AWG #12-18 wire, 600 volt, 60°C. Only one wire to each terminal.

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.

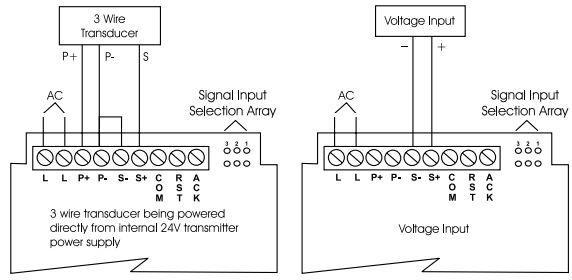
The jumper array is located at the rear of the instrument, next to the screw ternminal block. Remove jumper J3 (if installed) to disable the Lockout feature.

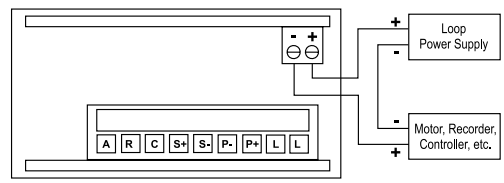
Input Signal	Jumper 1:	Jumper 2:
1-5, 0-5 V	OFF	OFF
0-10V	OFF	ON
0-20, 4-20mA	ON	OFF





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

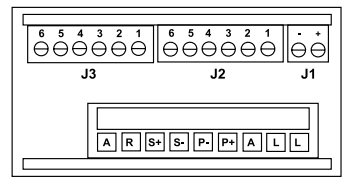




4-20mA output signal powered by an external 24V power supply.

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



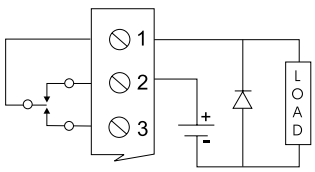
Notes:

1. 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.
3. J2 Terminals are for Total relays and J3 Terminals are for Rate relays.

Switching Inductive Loads

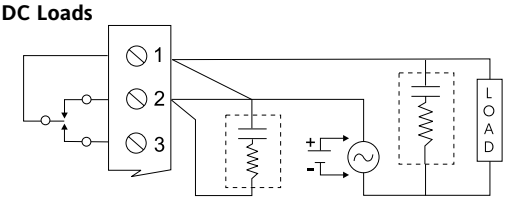
To minimize the effect of electrical noise and also prolong the life of the relay contacts, the use of a suppression network is recommended. RC networks can be purchased as an assembly. Refer to the following circuits for RC network assembly and installation:

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 V430's relay screw terminals. An RC network can also be installed across the load. Experiment for best results.

Specifications

BASIC METER

Inputs:

Field selectable 4-20mA, 0-20mA, 0-5V, 1-5V, 0-10V

Calibration Range:

4mA (1V) input can be set anywhere in range of the meter; 20mA (5V) can be set anywhere above or below 4mA (1V) input.

Loop Power:

Isolated, up to 20 mA at 24VDC regulated ±5%, noise less than 10mVpp. Max. loop resistance of 1200 Ohms. 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:

±0.1% F.S. ±1 count from 10-100% of flow, ±1% F.S. (0-10% flow)

Minimum Input Span:

1.6 mA between points

Input Impedance:

Voltage ranges; greater than 300k Ohms
Current ranges; 100 Ohms

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 sec.

Power:

115VAC ±10%, 50/60 Hz,10VA

Totalize:r

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

Total Reset:

Via front panel ENTER button, external contact closure at terminals RST and COM, or automatic 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 SPDT (form C); rated 2Amp @ 30VDC or 2Amp @ 250VAC resistive load;
1/14 HP @ 125/250VAC for inductive loads

Totalizer Presets:

Relays #1 and #2 are assigned to total 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 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 rate displayed on the meter. The 20mA output must correspond to any rate that is at least 501 counts greater than or 501 counts less than the rate corresponding to 4mA (for example, 4mA = 0, 20mA = 501). If the span from 4 to 20mA is less than 501 counts, an error message will appear.

Output Loop Resistance:

24VDC: 10 Ohms min; 600 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-power line

External Loop Power Supply:

35Vmax

Ordering Information

Specify:

1. Model Number:
   - **V430-0000** (no options),
   - **V430-1000** (2 relays, rate or count)
   - **V430-2000** (4-20mA output)
   - **V430-3000** (4-20mA and 2 relays, rate or count)
2. Power: 115VAC (standard)
3. Optional Factory Configuration. Specify **C620** with the desired configuration information.

invensys EUROTHERM action instruments

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703-443-0000
info@eurotherm.com or www.eurotherm.com/actionio

Factory Assistance

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

703-669-1318

actionsupport@eurotherm.com