



VISIPAK™
V408

Universal Temperature/Pressure/Process Indicator

V408-ALGNVH (green LEDs, 100-240VAC)
V408-ALRDVH (red LEDs, 100-240VAC)
V408-ALGNVL (green LEDs, 20-29VAC/VDC)
V408-ALRDVL (red LEDs, 20-29VAC/VDC)

Provides a 5 Digit Display and Alarm Outputs from Thermocouple, RTD, Strain Gauge or DC Inputs



- Universal Field Configurable Input for TC, RTD, mV, bridge, 0-10V and 4-20mA Signals
- Modular Design Provides 3 Option Slots plus an Optional Modbus Communication Slot
- Option modules for 2nd Input, DC Retran, Sensor Excitation, 3 Digital Inputs & Outputs, and Relays
- Four Field Configurable Setpoints Support Combination Alarm Functions, Rate of Change, Deviation Alarms, Alarm Blocking and Latching/Non-latching
- NEMA 4 Front Panel with Plug-in From Front Design
- Power Supply: 85 to 264VAC or optional 20 to 29V DC or AC

Description

The V408 is an 1/8 DIN, universal, 5 digit indicator with four alarms, two digital inputs and one SPDT relay output. Available with a green or red display, it accepts temperature inputs from J, K, T, L, N, R, S, B, C and Platinel II type thermocouples and three-wire Platinum 100 Ohm (Pt100) RTDs. Process variables such as 4-20mA, 1-5V and 0-10V as well as strain gauge bridge inputs can also be measured. Other thermocouple types or high accuracy 20 to 80 point custom linearization curves can be configured at the factory. Square root extraction or eight-point curve linearization can be user defined in the field. A second process input is available to accept remote setpoints and compare signals such as the average or difference, or selecting minimum or maximum readings.

Four programmable setpoint alarms can be field configured as rate of change, deviation high or low, non-latching and high or low or new, latching. The new alarm indicates the situation when a latched alarm has not been acknowledged and the measured value crosses the setpoint trip level a second time. The deviation alarm enables the user to reference alarm setpoints relative to a remote (main) setpoint from a controller. This remote setpoint would be a DC signal input to the optional 2nd process input module. Alarm hysteresis (deadband) can be configured from 1 to 9999 process variable units. Each alarm has a programmable delay up to 999.9 seconds.

The alarms can be linked to either the one standard relay output or up to three optional relay or digital output modules. These alarms can be configured in combination (e.g., one or all four alarms linked to one or all relays) and they will operate in fail-safe (i.e., normally energized) or non-fail-safe modes. Additionally, the display can be configured for password protection, limiting access to any or all functions. An alarm blocking function is also configurable to prevent alarm tripping during process start-up. Two digital input channels are provided to accept alarm acknowledgment (e.g., remote pushbutton). These two digital inputs or the optional triple-digital input modules can also be used for remote setpoint select, alarm acknowledge, process input select, bridge zero and span calibration and tare. Other functions include indicator control such as selecting full menu access, disabling the keypad lockout or simulating keypad functions.

The V408 indicator housing maintains a NEMA 4 (IP54) front panel seal and can be removed or unplugged from the front, without disconnecting any wiring. By disengaging the front panel clips the entire indicator and electronics can be quickly pulled from the panel.

Thermocouples, three-wire RTDs, bridge, voltage and mV signals can be accepted directly into the indicator. Current signals such as 4-20mA are input using the 2.49 Ohm shunt resistor included with the indicator and mounting hardware. The five-digit display (99999) is available in green or red and can be field configured to match the input signal range to the preferred engineering units. Offsets and two point slope adjustments are fully programmable to compensate for sensor variances.

Application

The V408 is an excellent solution for temperature, pressure, level, flow and other process variable measurements. The modular design was developed to allow it to be optimally configured for most indication, alarm and data acquisition applications.

The wide variety of option modules and programming functions make the V408 a valuable plant-wide indication solution. For example, the secondary input enables functions such as differential measurement and summing with the use of K values for signal scaling. This function is useful in monitoring the mixing of products or raw materials. The deviation alarm can be used to ensure that a product is not diluted or spoiled by significant process excursions beyond the setpoint.

The field configurable V408 is an ideal standardized solution for a variety of temperature measurement and on-off control applications. For example, it can be used to control the heating and cooling elements in an oven or environmental control system using two setpoints for the high and low temperature limits. Similarly, a 4-20mA or bridge pressure signal can be monitored and the setpoints can be used to control or alarm the gas pressure or liquid levels in a tank. Weight, flow, pressure, temperature, speed, position and rate are just some of the process variables that can be accurately displayed and monitored with this flexible and effective indicator.

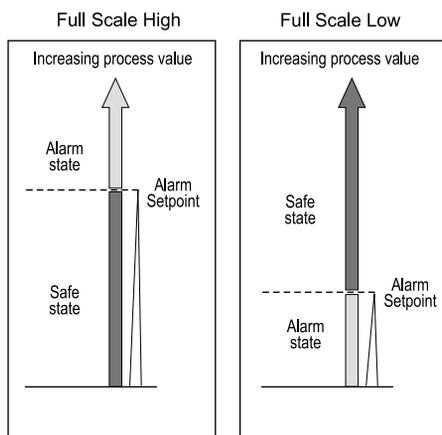
Table 1: Input & Display Ranges

Input	Display Range and Setpoint Min & Max Limits	
	Pt100	-200 to 850 _i C
Type J	-210 to 1200 _i C	-340 to 2192 _i F
Type K	-200 to 1372 _i C	-325 to 2500 _i F
Type T	-210 to 400 _i C	-325 to 750 _i F
Type L	-200 to 900 _i C	-325 to 1650 _i F
Type N	-200 to 1300 _i C	-325 to 2370 _i F
Type R	-50 to 1768 _i C	-58 to 3200 _i F
Type S	-50 to 1768 _i C	-58 to 3200 _i F
Type B	0 to 1820 _i C	32 to 3308 _i F
Type P (Platinel II)	0 to 1369 _i C	32 to 2469 _i F
-9.99 to 80mV	-999 to 9999	
0 to 20mA	-999 to 9999	
4 to 20mA	-999 to 9999	
0 to 10V	-999 to 9999	

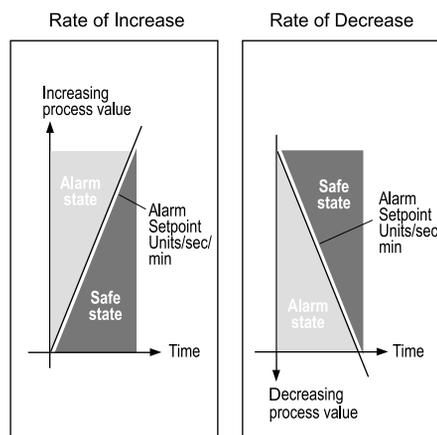
Full Scale Alarms

Alarm messages are flashed on the main display. Beacons flash for a new alarm and go steady when acknowledged. Four alarms are configured to operate as one of seven types.

Full Scale Alarms



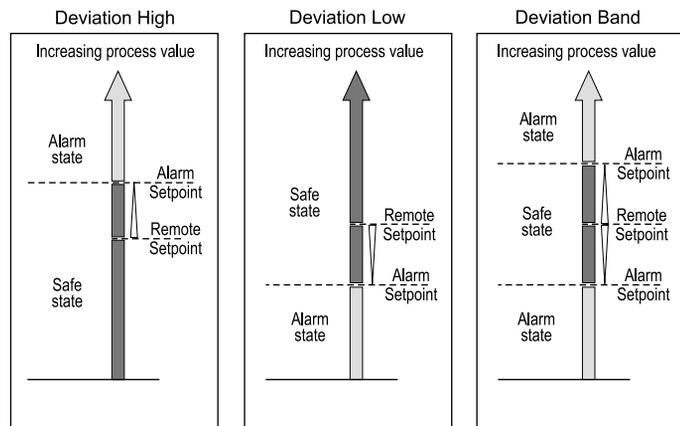
Rate-of-Change Alarms



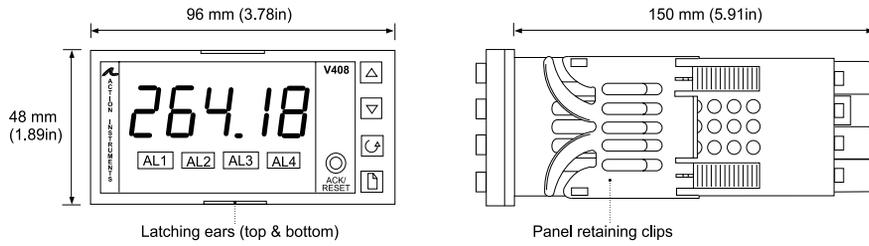
Deviation Alarms

Deviation alarms operate on the difference between the process value and a remote setpoint input. The input is normally the retransmitted setpoint of the temperature controller. An alarm will be generated if the process value deviates from the setpoint by more than a preset amount. This is particularly useful for protecting a valuable product from excess temperature.

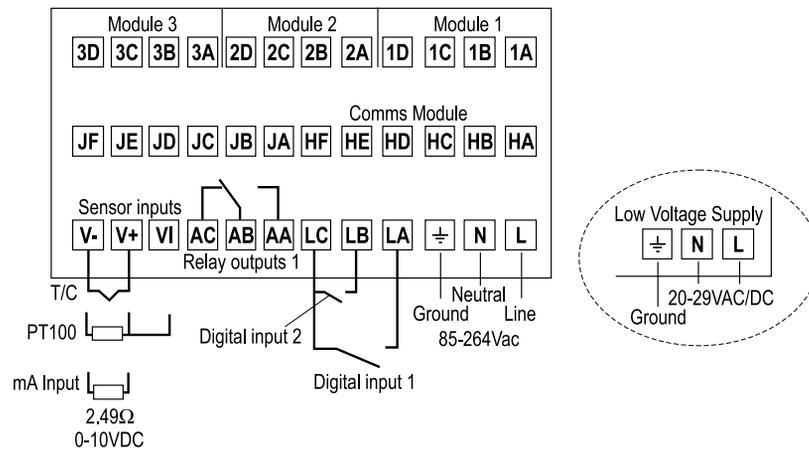
Deviation from Setpoint Alarms



Dimensions

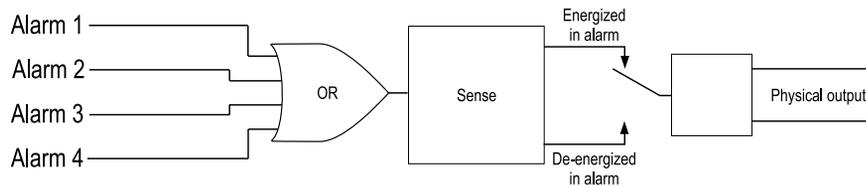


Wiring



Alarm Modes

Latching or non-latching operation can be selected and alarm delays can be applied. A special 'alarm blocking' mode is also available. With alarm blocking, after power ON, the alarm must first enter a safe state before the alarms will become active. This is particularly useful for low alarms which can be blocked while the process is warming up. Up to four alarms can be combined to activate one output.



Combining four alarms to activate one output

Specifications

General

Display:

5 digit (-9999 to 99999), 3 programmable decimal positions, red or green, 15.9mm (0.6 In.) high characters

Inputs/Outputs:

Analog Process Value (including second input)

Low Level Range: -100 to 100mV

High Level Range: 0-20mA, 0-10V

Sample Rate: 9Hz

Resolution:

<2mV for low levels, <2mV for high levels

Linearity:

Better than 0.2°C

Calibration Accuracy:

±0.2% of reading, or ± 1°C or ± 1LSD, whichever is greater

User Calibration:

Low and high offsets can be applied

Input Filtering:

Off to 999.9 seconds

Thermocouples:

Types J, K, T, L, N, R, S, B and Platine II

Cold Junction:

In automatic mode, >30 to 1 rejection of ambient temperature change or external 0°C, 45°C, 50°C external references

3-wire Pt100: 0.3mA excitation current

Functions, 2nd analog input:

2nd process value, remote setpoint, select min, select max., derived value

Digital Inputs:

(contact closure or open collector)

Digital Inputs 1 and 2:

switching voltage/current (non-isolated from the PV) 24VDC/20mA nominal

Off state Resistance: <100 Ohms

On State Resistance: >28K Ohms

Triple Contact Inputs:

Specification is as per digital inputs 1 & 2, except inputs are functionally isolated

Externally powered (triple logic inputs):

Off State: <5V DC

On State: 10.8 to 30V DC @ 2.5mA

Functions:

Triple logic or contact inputs can be configured for disable, alarm acknowledge, keylock, remote setpoint select, PV input 2 select, and strain gauge 1&2 tare correction.

DC Retransmission:

Range: Scaleable between 0-20mA and 0-10VDC

Resolution: 1 part in 10,000

Retransmission values:

Process value, setpoint or setpoint error

Transmitter supply:

Rating: 20mA, 24V DC

Strain gauge bridge supply:

Bridge voltage:

Software selectable, 5V or 10V DC

Bridge resistance: 300 Ohms to 10K Ohms

Alarms:

Number: Four alarms

Alarm types:

High, low, deviation high, deviation low, deviation band, rate of change (seconds or minutes), new alarm status, and sensor break.

Alarm modes:

Latching or non-latching.

Blocking:

Energized or de-energized (failsafe) in alarm

Alarm delay:

Off to 999.9 seconds

Communications:

Module types:

RS-232, 2-wire RS-485, and 4-wire RS-485

Protocols: Modbus

Panel Sealing:

NEMA 4, or IP54 (EN60529)

Dimensions:

96mm (3.78In.)W x 48mm (1.89In.)H

x150mm (4.01In.)D

EMC Compliance (CE Mark):

Emissions: EN50081-2

Immunity: EN50082-2

Safety: EN61010

Temperature:

Operating: 0 to 55°C (32 to 131°F)

Storage: -30 to 75°C (-22 to 167°F)

Humidity:

5 to 95%RH, non-condensing

Power:

Standard 100 to 240VAC, -15%, +10%, optional 24V dc, -15%, +20%; 15 W max.

Agency Approvals:

cUL approved per standard UL508.

CE conformance per EMC directive 89/336/EEC, amended by 93/68/EEC and Low Voltage Directive 73/23/EEC, amended by 93/68/EEC.

Accessories

The VisiPak model V408 is shipped with mounting brackets, 2.49 Ohm shunt resistor and user manual. In addition, the following accessories are available:

SUB2K-D5	2nd Input
SUB2K-R4	Form C Relay
SUB2K-D6	DC Re-trans
SUB2K-TK	Triple Contact Input
SUB2K-TL	Triple Logic Input
SUB2K-TP	Triple Logic Output
SUB2K-RR	Dual Relay
SUB2K-LR	Logic Relay
SUB2K-Y2	485 Comms
SUB2K-A2	232 Comms
SUB2K-F2	422 Comms
SUB2K-MS	24V, 20mA Exc.
SUB2K-G3	5V, Transducer Exc.
SUB2K-G5	10V Transducer Exc.

Ordering Information

Specify:

- Model Number:
V408 - ALGNVH (Green LED, 100-240VAC)
V408 - ALRDVH (Red LED, 100-240VAC),
V408 - ALGNVL (Green LED, 20-29VAC)
V408 - ALRDVL (Red LED, 20-29VAC),
- Accessories: (see Accessories)
- Optional Factory Configuration, specify C620 with the desired configuration information.

i n v e n t s y s

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