

VISIPAK™ V408

MODEL



Benefits

- Universal Field Configurable Input for Thermocouple, RTD, mV, bridge, 0-10V and 4-20mA Signals
- Optimal modular Design Provides 3 Option Slots plus one Optional Modbus® Communication Slot
- Option modules for 2nd Input, DC Retrains, Sensor Excitation, 3 Digital Inputs and 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 for Quick Replacement (Low MTTR)
- Wide Ranging Power Supply: 85 to 264VAC or optional 20 to 29V DC or AC



Universal Temperature/ Pressure/Process Indicator

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

DESCRIPTION

The VisiPak model V408 is a 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 Platinell 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, 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 (e.g. 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 or start-up. Two digital input



*Protecting the
Integrity of
Industrial
Process Signals*



Table 1: Input and Display Ranges

Sensor/Input	Display Range and Setpoint Min & Max Limits	
Pt100	-200 to 850°C	-325 to 1562°F
Type J	-210 to 1200°C	-340 to 2192°F
Type K	-200 to 1372°C	-325 to 2500°F
Type T	-210 to 400°C	-325 to 750°F
Type L	-200 to 900°C	-325 to 1650°F
Type N	-200 to 1300°C	-325 to 2370°F
Type R	-50 to 1768°C	-58 to 3200°F
Type S	-50 to 1768°C	-58 to 3200°F
Type B	0 to 1820°C	32 to 3308°F
Type P (Platinum II)	0 to 1369°C	32 to 2469°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	

channels are provided to accept alarm acknowledgment (e.g. remote push button). These two digital inputs or the optional triple-digital input modules can also be used for use for remote setpoint select, alarm

acknowledge, process input select, bridge zero and span calibration and tare. Other functions include indicator control functions 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 is unique in the sense that it 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 reducing mean time to repair (MTTR) and allowing easy access to the option

Thermocouples, three-wire RTDs, bridge and mV signals can be accepted directly into the indicator. Current signals such as 4-20mA are input using the 2.49Ω shunt resistor included with the indicator and mounting hardware. The five-digit display (99999) is available in green or red and it can be field configured to match the input signal range to

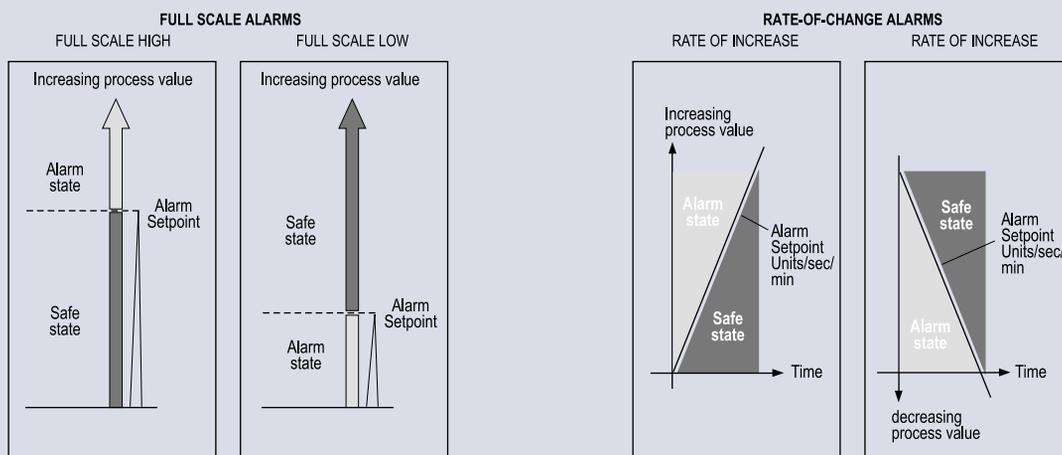
the preferred engineering units. Offsets and two point slope adjustments are fully programmable to compensate for sensor variances.

APPLICATION

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

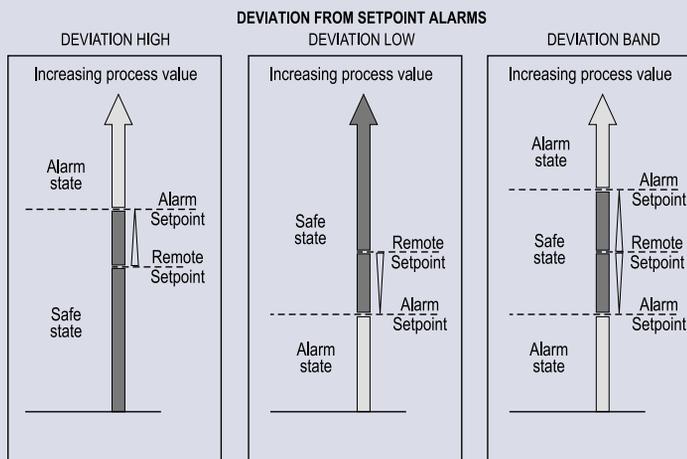
The wide variety of option modules and programming functions make the V408 a valuable plant-wide indication solution. For example, the secondary input enables functions such as differential measurement and summing with the use of K values for signal scaling. This function is useful in monitoring the 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.

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



DEVIATION ALARMS

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



SPECIFICATIONS

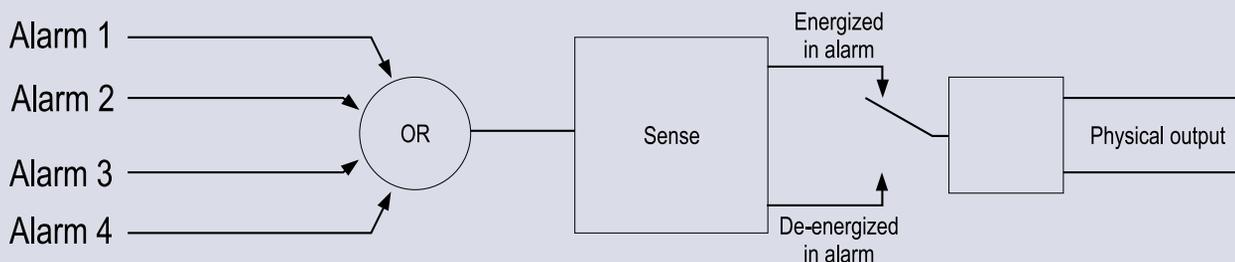
Display	5 digit (-9999 to 99999) with 3 programmable decimal positions, red or green, 15.9mm (0.6 In.) high characters	DC Retransmission	PV input 2 select, and strain gauge 1 and 2 tare correction. Range: Scaleable between 0-20mA and 0-10VDC Resolution: 1 part in 10,000 Retransmission values: Process value, setpoint or error from setpoint
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: < 2µV 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 Thermocouple: Types J, K, T, L, N, R, S, B and Platinell 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, 2 nd analog input: 2 nd process value, remote setpoint, select min, select max., derived value	Transmitter supply	Rating: 20mA, 24V DC
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: <100Ω On State Resistance: > 28KΩ 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,	Strain gauge bridge supply	Bridge voltage: Software selectable, 5V or 10V DC Bridge resistance: 300Ω to 10KΩ
		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
		Communication	Module types: RS232, 2 wire RS485 and 4-wire RS485 Protocols: Modbus [®]
		Panel Sealing	NEMA 4, or IP54 (EN60529)
		Dimensions	96mm (3.78In.)W x 48mm (1.89In.)H x 150mm (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% 15Wmax.
		Agency Approvals	Model V408 is 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.

Being field configurable, the V408 indicator is an ideal standardized solution for a variety of temperature measurement and on-off control applications. For example, the V408 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 or vessel. 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 indicating alarms.

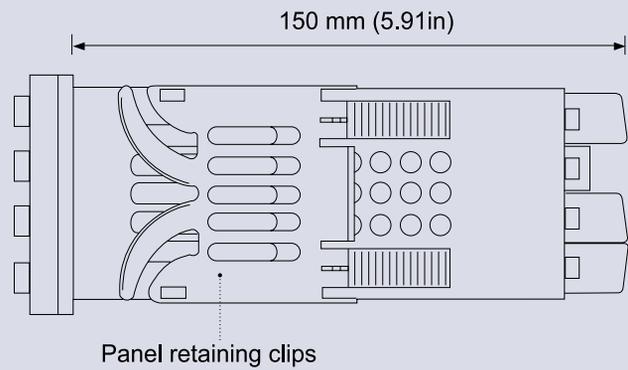
ALARM MODES

Latching or non-latching operation can be selected and alarm delays can be applied. A special mode known as 'alarm blocking' is available. In this mode, 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.

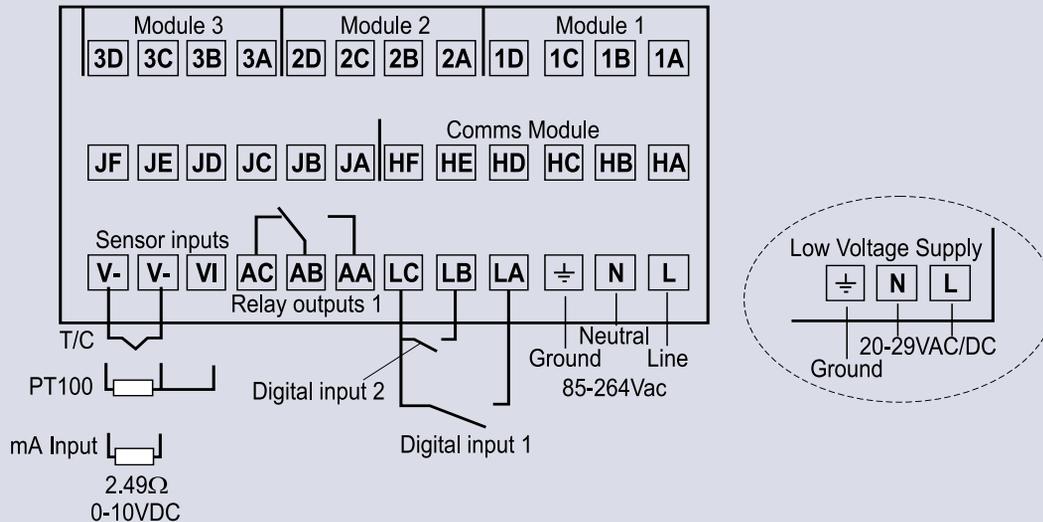


Combining four alarms to activate one output

DIMENSIONS



WIRING DIAGRAM



MODELS & ACCESSORIES

Accessories

The VisiPak model V408 is shipped with mounting brackets, 2.49Ω 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:

1. 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),

2. Accessories: (see Accessories)

3. Optional Factory Configuration, specify C620 with the desired configuration information.

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