

# Action Instruments

## Product Guide



...setting the standard  
Eurotherm® Flexible Solutions

## Eurotherm: a company that understands signal conditioning and isolating

For over 35 years Eurotherm has built an international reputation for developing premium quality "fit for purpose" products and solutions. The Eurotherm brands (Action Instruments, Barber-Colman, Chessell, Continental and Eurotherm) have long been recognised as the leaders in the industrial automation market.

Action Instruments provides the signal conditioning industry the highest quality, most innovative solutions to remote signal conditioning and isolation applications. Action defined the standard for accuracy and reliability and our focus on technological innovation continues to raise that standard. The people behind the Action Instruments brand are devoted to understanding your needs and overcoming obstacles to the collection and transmission of industrial automation process signals.

### Easy Solutions to Tough Problems

Every Action product is designed for easy installation, operation and maintenance. Whether you are amplifying or splitting signals, conditioning sensor outputs, isolating grounding problems, or adding more drive to current loops, Action's complete product selection provides simple, convenient solutions to any analog signal conditioning need.

### High Performance and Proven Reliability

Reliable signal processing under harsh conditions. That's what Action's products deliver. Nearly three decades of proven success can assure you of our adherence to the highest quality standards and the best in manufacturing techniques.

### Real World Ruggedness

Action products are in tune with the industrial environment - the real world of hard-hats, forklifts, and EMI/RFI - they are ruggedised to survive the extremes of vibration, shock, temperature and humidity that are common to the manufacturing arena.

### Action's Personal Commitment to Your Success

We know how tough it is on the plant floor and we realise that every application has different requirements. That's why Action's solutions are tailored to your problems.

### Best Engineering Support in the Industry

Experienced, knowledgeable and friendly engineers are available throughout the world to answer your questions.

### Think Reliable, Think Smart, Think Action

Our goal is to be your exclusive supplier for industrial measurement and control products. What can we offer you?

Plenty.

## What do Action Products Do?

### Isolation



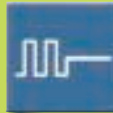
A ground loop can occur if more than one ground connection is made to a single control signal. Because grounds are seldom at the same potential, an unwanted current will be generated and interfere with the control signal. Signal isolators break the ground loop current path and maintain the integrity of the measurement.

### Signal Conversion



Industrial applications use a wide array of sensors to measure temperature, flow, length, speed, frequency, etc. These signals may then need to be converted into a form usable by the instrumentation to which they are connected. Any sensor signal (thermocouple, RTD, DC voltage, DC current, AC voltage, frequency, resistance, etc.) can be converted to any standard process signal.

### Noise Filtering



Isolators incorporate low pass filters that eliminate high frequency EMI/RFI and unwanted signals from power lines, generators and motors.

### Linearisation



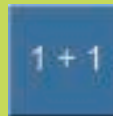
Many sensors output a signal that is not linearly related to the engineering value being measured. For example, a thermocouple used to measure temperature has a nonlinear millivolt output. A thermocouple input signal isolator translates this to a standard, robust linear signal such as 4 to 20mA.

### Limit Alarms



Limit alarm units take in a process signal and compare it to one or more setpoints. They then provide an output signal, usually a relay contact, when the signal crosses the setpoint.

### Math



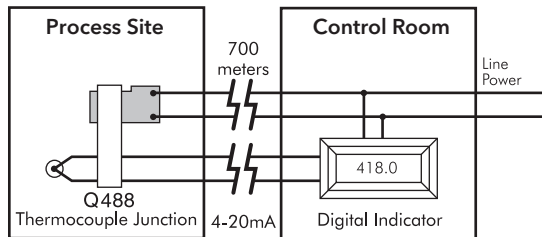
Isolators that can perform addition, subtraction, multiplication, division, square root, and averaging.

# What is Signal Conditioning?

Signal conditioners are electronic instruments used in factory or machine automation. They can amplify, convert, boost, transform, buffer, filter, alarm and isolate process control signals. There seems to be no limit to the variety of things control engineers want to do with control signals. Signal conditioners are known by many names: converters, transducers, isolators, transmitters, and black boxes. Conventionally, most signal conditioners and isolators fall into two categories based on the number of wires required for power and signal.

## Four-wire Transmitters

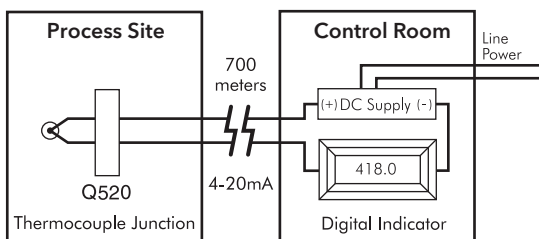
A four-wire transmitter has two wires for power and two wires for the signal output. A four-wire transmitter can be either AC or DC powered. Four-wire transmitters provide a powered output, either a voltage signal (e.g., 0-10V, 1-5V); a current signal (e.g., 4-20mA, 10-50mA); or in some cases a relay (e.g., solid state or contact closure). Four-wire transmitters require a power supply - they do not use power from the input or output signal lines. The power supply allows four-wire transmitters to power their output signal. Because of this, they are often used to boost signal strength for retransmission.



Four-wire Transmitter

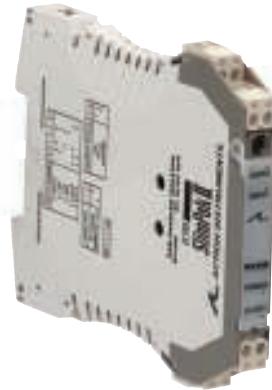
## Two-wire Transmitters

A two-wire transmitter is powered by the same two wires that carry the output signal. A two-wire transmitter is always DC powered and the output can only be a current signal, typically 4-20mA, or sometimes 10-50mA. The two-wire transmitter is considered a field device and requires very little power (milliwatts). It is therefore appropriate for hazardous (explosive) environments, such as chemical refineries and pharmaceutical plants. The low DC power requirement, which ranges from 10-48VDC at currents as low as 4mA, reduces the chances of an electrical spark causing ignition of flammable vapours or dust. Additionally, two-wire transmitters save on wire costs since both the signal and power are on the same wires. Locating a two-wire transmitter as far as 2000 feet from the control room is possible and at half the wiring cost of a four-wire transmitter. It is important to note that two-wire transmitters can be isolated or non-isolated. Many low cost



Two-wire Transmitter

two-wire transmitters are not isolated, which makes it important to ensure that the input sensor is not grounded. All of Action's two-wire transmitters are fully isolated. Members of this group include the TransPak™ series and most of the Q5xx products.



WV408 Ultra SlimPak II

## Limit Alarms

Limit alarms are considered a four-wire transmitter since they have two wires for power and at least two wires for the relay signal output. Limit alarms are similar to a thermostat. On your thermostat at home you may have the temperature set to a cozy 72°F or 23°C. If the room temperature falls below that "setpoint" the heater will turn on. This is an example of on/off control. A limit alarm performs the same function. It has a setpoint which is compared to a process signal. If the temperature gets too high, the limit alarm is used to alert an operator or shut down the process. Other applications include limit alarms that can also act as backup for a control system to perform a controlled shutdown process in order to prevent damage or other hazards.

## Digital Indicators




Digital indicators (or panel meters) will also accept direct sensor inputs. For the most part, AC powered indicators can be considered a four-wire transmitter if they are configured with an analog or relay output. Indicators are most commonly used to display process variables, however some have secondary functions, such as a 4-20mA transmitter output, limit alarm, or relay contact closure output.



VisiPak V408,  
1/8 DIN Rail Mount Indicator

# Product Selection Guide

Input Type	Ultra SlimPak™ II		Ultra SlimPak™	
	Limit Alarms	Signal Conditioners	Limit Alarms	Signal Conditioners
DC Volts DC Current	WV108	WV408	G108	G408
RTD	WV118	WV418	G118	G418
Thermocouple	WV128	WV428	G128	G428
Potentiometer		WV438		G438
Strain Gauge		WV448		G448
AC Volts AC Current	WV168	WV468	G168	G468
Frequency		WV478		G478
Accessories	Configuration Tools available	Configuration Tools available		
24VDC Power Supplies	WV905	WV905	H910 H915	H910 H915
Other	Ethernet Connectivity PC and Button Setup Removable Connectors		Fixed Connectors	

ActionIQ™			TransPak™	VisiPak™
				
AC Limit Alarms and Signal Conditioners	DC Limit Alarms and Signal Conditioners	Loop Powered 2/3 Wire Transmitters & Signal Conditioners	2 Wire Transmitters	Digital Displays
Q106 Q403, Q406	Q108 Q404, Q408 Q498	Q500 Q501	T280, T287	V108, V116, V132, V408
Q116 Q486	Q488	Q510	T713 T280, T287	V108, V116, V132, V408
Q126 Q486	Q488	Q425 Q520	T280, T287	V108, V116, V132, V408
Q436	Q438		T287	V408
Q446	Q448			V408
Q466	Q468			
Q476	Q478 Q498			
IQRL-2xxx required for AC power distribution. Config Tools available	IQRL-Dxxx for DC power distribution. Config Tools available		T287 requires C680-0001 Software and Adapter	
	Wide Ranging Input Math Capability		Intrinsic Safety Models	Intrinsic Safety Models

# Ultra SlimPak™ II

## DIN Rail Mount Signal Conditioners, Isolators, Alarms, & Power Supplies



The Ultra SlimPak II Series can function as traditional stand-alone limit alarms and isolators, or they can simultaneously be connected to your company's intranet to monitor your signals via a standard browser when coupled with the optional WVC16 interface unit.

- Ethernet Connectivity to Most Client Software
- Built In Web Browser with Email and Logging Capability
- PC or Button Setup and Calibration
- Smart Power Technology Automatically Adjusts Power
- High Density Modules
- Reduced Wiring with Jumpers Transferring Power from Module to Module
- Removable Connectors
- Fast Response and High Accuracy
- In-Process Calibration

### SPECIFICATIONS

Isolation:	1800VDC or peak AC between input, output and power
Operating Humidity:	15 to 95% @ 45°C
Temperature Range	Operating: 0 to 60°C Storage: -20 to 85°C
Power Consumption:	1.5W typical, 2.5W max.
Supply Range:	9 to 30VDC
Agency Approvals:	UL; CSA; CE;
(WV408/428 only):	Class 1, Div 2, Gp A, B, C, D to 60°C ambient

### ORDERING INFORMATION

Part Number	Function	Input	Input Span (Field Configurable)	Housing Width	Output (Field Configurable)
WV408	Isolator	DC Volts DC Current	+/-150mV, +/-1.5V, +/-15V, +/-150V +/-2.5mA, +/-25mA	12.7mm	DC Voltage (0-10V) DC Current (0-20mA, 4-20mA) (95%adjustment in any range)
WV108	Limit Alarm		+/-20mV, +/-200mV, +/-2V, +/-20V, +/-200V +/-10mA, +/-100mA	17.5mm	Alarm (Dual SPDT Relay)
WV418	Isolator	2, 3 & 4 Wire RTD	Platinum RTD: -200 to 600°C Copper RTD: -200 to 260°C (95%adjustment in any range)	17.5mm	DC Voltage (0-10V) DC Current (0-20mA, 4-20mA) (95%adjustment in any range)
WV118	Limit Alarm	2 & 3 Wire RTD		17.5mm	Alarm (Dual SPDT Relay)
WV428	Isolator	Thermocouple	Type B: 75 to 1800°C Type C: 0 to 2315°C (428 only) Type E: -200 to 1000°C Type J: -210 to 760°C Type K: -200 to 1370°C Type N: -200 to 1300°C (428 only) Type R/S: 0 to 1760°C Type T: -200 to 390°C (95%adjustment in any range)	12.7mm	DC Voltage (0-10V) DC Current (0-20mA, 4-20mA) (95%adjustment in any range)
WV128	Limit Alarm			17.5mm	Alarm (Dual SPDT Relay)
WV438	Isolator	Potentiometer	100 ohms to 100k ohms	12.7mm	DC Voltage (0-10V) DC Current (0-20mA, 4-20mA) (95%adjustment in any range)
WV448	Isolator	Strain Gauge	+/-5mV to +/-200mV Excitation: 1-10VDC @ 120mA	17.5mm	DC Voltage (0-10V) DC Current (0-20mA, 4-20mA) (95%adjustment in any range)
WV468	Isolator	AC Volts AC Current	50mV AC to 250VAC 20mA AC to 100mA AC	12.7mm	DC Voltage (0-10V) DC Current (0-20mA, 4-20mA) (95%adjustment in any range)
WV168	Limit Alarm			17.5mm	Alarm (Dual SPDT Relay)
WV478	Isolator	Frequency	2Hz to 10kHz	12.7mm	DC Voltage (0-10V) DC Current (0-20mA, 4-20mA) (95%adjustment in any range)
WV905	Power Supply	AC Power DC Power	85 to 265VAC, 50 to 60Hz 120 to 300VDC	22.5mm	24VDC @ 500mA
WVC16	Communications Interface	DC Power		22.5mm	Config summary/editing; diagnostics; alarm setup/ status; e-mail; process variable viewing; data logging

# Ultra SlimPak™

## DIN Rail Mount Signal Conditioners, Isolators, & Alarms



Ultra SlimPaks are high density, DIN Rail mount, setpoint limit alarm and isolating signal conditioner modules. All Ultra SlimPak modules utilise Action's advanced, ASIC-based design for field configurable input and output flexibility.

- **Field Configurable**
- **Wide Ranging**
- **High Density DIN Rail Mount**
- **ASIC Based Design for Maximum Reliability**

### SPECIFICATIONS

Isolation:	1800VDC between input, output and power (except G438)
Operating Humidity:	15 to 95% @ 45°C
Temperature Range	Operating: 0 to 55°C Storage: -25 to 70°C
Power Consumption:	1.5W typical, 2.5W max.
Supply Range:	9 to 30VDC (except G448 is 18 to 30VDC)
Agency Approvals:	UL; CSA; CE

### ORDERING INFORMATION

Part Number	Function	Input	Input Span (Field Configurable)	Housing Width	Output (Field Configurable)
G408	Isolator	DC Volts DC Current	10mV to 100V 1mA to 100mA	12.6mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
G408-1001					DC Voltage (-5 to +5V, -10 to +10V)
G108	Limit Alarm		10mV to 200V 1mA to 100mA	17.5mm	Alarm (Dual SPDT Relay)
G418	Isolator	3 Wire RTD	Platinum: 100, 500, 1000 Ohm with 16 ranges from -200 to 600°C down to -18 to 50°C	17.5mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
G118	Limit Alarm		Copper: 10, 25, 100 Ohm with 9 ranges from -200 to 260°C down to -18 to 50°C  (50% adjustment in any range)	17.5mm	Alarm (Dual SPDT Relay)
G428	Isolator	Thermocouple	Type B: 500 to 1820°C Type E: -150 to 1000°C Type J: -200 to 750°C Type K: -200 to 1370°C Type R/S: 50 to 1760°C Type T: -150 to 400°C	12.6mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
G128	Limit Alarm		17.5mm	Alarm (Dual SPDT Relay)	
G438	Isolator	Potentiometer	100 ohms to 100k ohms	12.6mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
G448	Isolator	Strain Gauge	0 to 200mV +/-5mV to +/-200mV Excitation: 1-10VDC @ 120 mA	17.5mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
G468	Isolator	AC Volts AC Current	50mV AC to 250VAC 50mA AC to 100mA AC	12.6mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
G168	Limit Alarm		50mV AC to 250VAC 50mA AC to 100mA AC	17.5mm	Alarm (Dual SPDT Relay)
G478	Isolator	Frequency	2Hz to 10kHz	12.6mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
WV905	Power Supply	AC Power	100 to 240VAC, 50 to 60Hz	22.5mm	24VDC @ 500mA

# ActionI/Q™

## DIN Rail Mount Signal Conditioners, Isolators, & Alarms



- Multi-channel Conditioners
- Two-Wire Transmitters
- SnapLoc Terminal Blocks
- Removable Connectors
- Interlocking Modules
- Optional I/Q Rail Power Bus
- PC Based Setup
- Math Modules

### SPECIFICATIONS

Isolation:	1800VDC or peak AC between input, output and power
Operating Humidity:	15 to 95% @ 45°C
Temperature Range	
Operating:	0 to 55°C
Storage:	-25 to 70°C
Power Consumption:	2.5W max.
Supply Range:	85 to 265VAC (Qxx6, Qxx3); 9 to 30VDC (Qxx8 except Q448); 18 to 30VDC (Q448); 10.8 to 26.8VDC (Q404); 12 to 35VDC (Q501, Q510, Q520); 6VDC min. (Q500)
Agency Approvals:	UL; CSA; CE

The ActionI/Q Series of signal conditioners have wide ranging field configurable inputs and outputs. These DC, RTD, T/C, potentiometer, bridge/strain gauge, AC and frequency input devices incorporate TouchCal™ technology, which simplifies calibration and allows more than 90% adjustment of zero and span.

### ORDERING INFORMATION (AC Powered, 4-Wire)

Part Number	Function	Input	Input Span (Field Configurable)	Housing Width	Output (Field Configurable)
Q106	Limit Alarm	DC Volts DC Current	+/-10mV to +/-200V +/-1mA to +/-100mA	22.3mm	Alarm (Dual SPDT Relay) 24VDC, 20mA max. Excitation Supply
Q116	Limit Alarm	3 Wire RTD	Pt100, Pt500, Pt1000: -50 to 850°C Cu10, Cu100: -200 to 260°C Ni120: -30 to 320°C NiFe604: -200 to 240°C	22.3mm	Alarm (Dual SPDT Relay)
Q126	Limit Alarm	Thermocouple	Type B: 0 to 1820°C Type C: 0 to 2320°C Type E: -270 to 1000°C Type J: -210 to 760°C Type K: -270 to 1372°C Type N: -200 to 1300°C Type R: 0 to 1760°C Type S: 0 to 1750°C Type T: -270 to 390°C	22.3mm	Alarm (Dual SPDT Relay)
Q403-1L08 Q403-1L09 Q403-1L28 Q403-2L00	Isolators	DC Volts DC Volts DC Volts DC Current (2 Ch)	0 to 10V 0 to 10V -10 to 10V 4 to 20mA	22.3mm	4 to 20mA DC 0 to 10VDC -10 to 10VDC 4 to 20mA DC
Q406-A000 Q406-A001 Q406-A002 Q406-A003 Q406-A004	Isolators	DC VI (1 Ch) DC VI (1 Ch, 24VDC Excitation) DC VI (1 Ch In; 2 Out) DC VI (1 Ch In; 2 Out, 24VDC Excitation) DC VI (2 Ch)	+/-10mV to +/-100V +/-1mA to +/-100mA	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA) (0-20mA n/a on dual outputs)
Q436	Isolato	Potentiometer	100 ohms to 100k ohms	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
Q446	Isolato	Strain Gauge	0 to 10mV up to 0 to 200mV +/-5mV up to +/-200mV (50% adjustment any range) Excitation: 1-10VDC @ 120 mA	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
Q466	Isolato	AC Volts AC Current	50mV to 300V 5mA to 100mA	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
Q476	Isolato	Frequency	2Hz to 10kHz, 150mVp to 150Vrms	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
Q486	Isolato	Universal (includes 2, 3 & 4 Wire RTD)	(See thermocouple types above) Pt100, Pt200, Pt500, Pt1000: -200 to 850°C Cu-9.035: -40 to 260°C Ni120: -80 to 320°C +/-90mV +/-900mV 0 to 4000 ohms	22.3mm	DC Voltage (0-10V) DC Current (0-20mA)



### ORDERING INFORMATION (DC Powered, 2-Wire)

Part Number	Function	Input	Input Span	Housing Width	Output
Q500-1B00 Q500-2B00 Q500-4B00	Input Loop Powered Transmitters	DC Current (1 Ch) DC Current (2 Ch) DC Current (4 Ch)	0(4) to 20mA	22.3mm	0(4) to 20mA DC
Q501-1Bxx Q501-2Bxx	Output Loop Powered Transmitters	DC VI (1 Ch) DC VI (2 Ch)	0 to 1mA, 0 to 20mA, 4 to 20mA 0 to 50mV, 0 to 100mV, 0 to 500mV 0 to 1V, 0 to 5V, 1 to 5V, 0 to 10V, 0 to 100V +/- 10V	22.3mm	4 to 20mA DC
Q510-0Bxx Q510-4Bxx	Output Loop Powered Transmitters	RTD (2 Ch) RTD (4 Ch)	Pt100: 0 to 100°C, 0 to 150°C, 0 to 200°C, 0 to 250°C, 0 to 500°C  0 to 200°F, 0 to 300°F, 0 to 400°F, 0 to 500°F, 0 to 1000°F	22.3mm	4 to 20mA DC
Q520-0Bxx	Output Loop Powered Transmitter	Thermocouple (2Ch)	Type J 0 to 500°F, 0 to 1000°F, 0 to 500°C Type K: 0 to 500°F, 0 to 2000°F, 0 to 1000°C Type T: 0 to 500°F, 0 to 250°C	22.3mm	4 to 20mA DC

### ORDERING INFORMATION (DC Powered, 4-Wire)

Part Number	Function	Input	Input Span (Field Configurable)	Housing Width	Output (Field Configurable)
Q108	Limit Alarm	DC Volts DC Current	+/- 10mV to +/- 200V +/- 1mA to +/- 100mA	22.3mm	Alarm (Dual SPDT Relay)
Q404-2L08 Q404-2L09 Q404-2L28 Q404-3L00 Q404-3L01 Q404-4L00	Isolators	DC Volts (2 Ch) DC Volts (2 Ch) DC Volts (2 Ch) DC Current (1 Ch, 24 VDC Excitation) DC Current (1 Ch, 24 VDC Excitation) DC Current (1 Ch In; 2 Ch Out)	0 to 10V 0 to 10V -10 to 10V 4 to 20mA 4 to 20mA 4 to 20mA	22.3mm	4 to 20mA DC 0 to 10VDC -10 to 10VDC 4 to 20mA DC 0 to 10VDC 4 to 20mA DC
Q408-A000 Q408-A004	Isolator	DC VI (1 Ch) DC VI (2 Ch)	10mV to 100V 1mA to 100mA	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA) (0-20mA on A000 only)
Q438	Isolato	Potentiometer	100 ohms to 100k ohms	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
Q448	Isolato	Strain Gauge	0 to 200mV +/- 5mV to +/- 200mV Excitation: 1-10VDC @ 120 mA	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
Q468	Isolato	AC Volts AC Current	100mV to 300V 10mA to 100mA	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
Q478	Isolato	Frequency	2Hz to 10kHz, 150mVp to 150Vrms	22.3mm	DC Voltage (0-5V, 0-10V) DC Current (0-1mA, 0-20mA, 4-20mA)
Q488	Isolato	Universal (includes 2, 3 & 4 Wire RTD)	Type B: 0 to 1820°C Type C: 0 to 2320°C Type E: -270 to 1000°C Type J: -210 to 760°C Type K: -270 to 1372°C Type N: -200 to 1300°C Type R: 0 to 1760°C Type S: 0 to 1750°C Type T: -270 to 390°C  Pt100, Pt200, Pt500, Pt1000: -200 to 850°C Cu-9.035: -40 to 260°C Ni120: -80 to 320°C  +/- 90mV +/- 900mV  0 to 4000 ohms	22.3mm	DC Voltage (0-10V) DC Current (0-20mA)
Q498*	Isolato	DC VI (2 Ch, Isolated) Frequency Discrete (to 18V)  Math Functions	+/- 150mV, +/- 1.5V, +/- 15V, +/- 150V +/- 2.5mA, +/- 25mA 2Hz to 10kHz, 150mVp to 150Vrms  Add, Subtract, Multiply, Divide, Square Root	22.3mm	DC Voltage (0-10V, +/- 10V) DC Current (0-20mA) Frequency (0 to 10kHz) Discrete (to 18V)
Q425-0B01 Q425-0B03 (both 3-Wire)	Transmitter	Thermocouple	Type J 0 to 500°F Type J 0 to 500°C	22.3mm	DC Voltage (0-10V)

\* The Q498 is a DC powered, DIN rail mount, DC input signal conditioner. The unit is fully isolated to 1800V between input, output and power. Two isolated analog inputs each accept either a DC voltage or current. One analog output delivers either DC bipolar voltage or unipolar current. The Q498 also has a separate frequency input channel and a frequency output, as well as a discrete input and output channel.

The Q498 can perform single or double input math calculations on the input values. The available operators are Addition, Subtraction, Multiplication, Division, Square Root and Average. Process control functions include Hi/Lo Select, Rate of Change Limiter, and Track & Hold. The frequency input can also have the math functions applied. A 25-point Linearisation function is available for Channel 1 Analog input only. All output math and process control functions require C698-0000 software.

# TransPak™ T280

Isolating 2-Wire Transmitter for Pt100 RTD, Thermocouple, & mV



- Miniature, Thermal-Head Mounted
- 1000VDC Input to Output Isolation
- Cost Effective Fixed Inputs
- Eliminates Ground Loops
- Hinged Cover Protects Potentiometers
- Embedded Terminals

## SPECIFICATIONS

### Input Types

Thermocouple: B, E, J, K, L, N, R, S, T  
 RTD: Pt-100, 2-wire or 3-wire  
 mV: 100mV max.

### Input Span

Thermocouple: 5mV min. span  
 RTD: 20°C min. 500°C max.  
 mV: 5mV min. span

Adjustability: ±15% for both zero & span

Output Span: 4-20mA, limiting @ <28mA

Isolation: 1000VDC

Supply Voltage: 10 to 40VDC, polarity protected

Operating Temperature: -20 to +70°C

Agency Approvals: CE

## ORDERING INFORMATION

### Specify:

T280-1xxx-C (F): for RTD Input  
 T280-2xxx- [tc type] C (F): for thermocouple Input  
 T280-3xxx: for mV Input

### Accessories:

T25H-0000: Headmount enclosure - 1/2 NPT for thermowell and conduit.  
 AP9046: ActionPak 24/40VDC, 65mA Loop Power Supply

# TransPak™ T287

Programmable Isolating Universal Input 2-Wire Transmitter



- PC Based User Friendly Configuration
- 2000VDC Input to Output Isolation
- Universal Input Reduces Inventory
- Custom Linearisation for Special T/C Types and Math
- Single or Dual Inputs
- DIN Rail Mounting Adapter Included

## SPECIFICATIONS

### Input Types

Thermocouples: Most standard types & all special types using customer defined tables & polynomials  
 RTD: 2-, 3- & 4-wire, Pt-100, Ni-110, Ni-120 and other RTDs. Includes Callandar-Van-Dusen adaptation and custom sensors Linearisation with user defined tables and polynomials

DC mV: -10 to 100mV

Potentiometers: 0 to 20k Ohms

Resistance: 0 to 400 Ohms

Infrared

Minimum Range: 2mV

Output: 4-20mA

Supply Voltage: 9-40VDC @ no load, polarity protected

Operating Temp: -40 to 85°C

Isolation: 2000VDC, input to output

Calibration: Unit includes all calibration parameters, performs periodic zero and span self-test, and auto calibration

Agency Approvals: CE

## ORDERING INFORMATION

### Specify:

1. Model: T287-0000  
 2. Model: C680-0001 Isolated Communications Adapter, Configuration and Calibration Software, and User's Guide

### Accessories:

T25H-0000: Headmount enclosure - 1/2 NPT for thermowell and conduit  
 AP9046: ActionPak 24/40VDC, 65mA Loop Power Supply  
 C680-0002: Zero/Span Trimmer

## VisiPak™ V108, V116 & V132

### Temperature/Process Indicators



- Field Configurable Input for Thermocouple, RTD, mV and mA
- 3 Field Configurable Alarm Setpoints with 1 or 2 Alarm Outputs
- Bright Green 4-Digit (9999) LED Display, Programmable for Engineering Units
- Combination Alarm Functions, Alarm Blocking and Programmable Latching/Non-Latching
- IP65 Front Panel with Tactile Configuration Buttons
- Standard Power Supply 85 to 264VAC, 48 to 62Hz or Optional 20 to 29VDC/VAC (n/a on V108)

#### ORDERING INFORMATION

##### Specify:

V108-ALGNVH	1/8 DIN, Green LED Display, 85-264 VAC PS
V108-ALRDVH	1/8 DIN, Red LED Display, 85-264 VAC PS
V116-ALVH	1/16 DIN, Green LED Display, 85-264 VAC PS
V116-ALVL	1/16 DIN, Green LED Display, 20-29VDC/VAC PS
V132-ALVH	1/32 DIN, Green LED Display, 85-264 VAC PS
V132-ALVL	1/32 DIN, Green LED Display, 20-29VDC/VAC PS

##### Accessories:

SUB2-1V1	0 to 10V Input Adapter
SUB2-1R7	External Relay (V116 and V132 only)

(All units ship with mounting brackets, a 2.49 ohm shunt resistor, and a user manual.)

## VisiPak™ V408

### Universal Temperature/Pressure/ Process Indicators



- Universal Field Configurable Input for Thermocouple, RTD, mV and mA, Bridge, and 0 to 10V Signals
- Modular Design Provides 3 Option Slots plus 1 Optional Modbus Communications Slot
- Option Modules for 2nd Input, DC Retran, Sensor Excitation, 3 Digital Inputs/Outputs, and Relays
- 4 Field Configurable Setpoints Support Combination Alarm Functions, Rate of Change, Deviation Alarms, Alarm Blocking and Latching/Non-Latching
- IP65 Front Panel with Plug In from Front Design for Quick Replacement
- Standard Power Supply 85 to 264VAC, 48 to 62Hz or Optional 20 to 29VDC/VAC

#### ORDERING INFORMATION

##### Specify:

V408-ALGNVH	1/8 DIN, Green LED Display, 85-264 VAC PS
V408-ALGNVL	1/8 DIN, Green LED Display, 20-29VDC/VAC PS
V408-ALRDVH	1/8 DIN, Red LED Display, 85-264 VAC PS
V408-ALRDVL	1/8 DIN, Red LED Display, 20-29VDC/VAC PS

##### Accessories:

SUB2K-D5	2nd Input
SUB2K-D6	DC Retran
SUB2K-R4	Form C Relay
SUB2K-TK	Triple Contact Input
SUB2K-TL	Triple Logic Input
SUB2K-TP	Triple Logic Output
SUB2K-RR	Dual Relay
SUB2K-LR	Logic Relay
SUB2K-A2	232 Communications
SUB2K-F2	422 Communications
SUB2K-Y2	485 Communications
SUB2K-MS	24VDC, 20mA Excitation
SUB2K-G3	5VDC Transducer Excitation
SUB2K-G5	10VDC Transducer Excitation

(All units ship with mounting brackets, a 2.49 ohm shunt resistor, and a user manual.)

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