

- Universal Input - mA, mV, V, RTD ,TC, Potentiometer
- Excellent Accuracy
- 1500 Volt (3-way) Isolation
- DIP Switch Configuration
- Enhanced Operation via PC Software Configuration
- Superior Flexible Power: 10 - 40 VDC or 19 - 28 VAC (50-60 Hz)
- DIN Rail Mount (35 mm)
- Removable Terminal Blocks



The UniPak™ model UP488's universal input configurability accommodates the most popular input types and ranges commonly used: DC current and voltage, RTD (Pt100, Pt500, Pt1000, Ni100), thermocouple (J, K, R, S, T, B, E, N) or a variable resistance input (potentiometer, rheostat, thermoresistance). This flexibility provides the ultimate in inventory and purchase order line item reduction. The DC current or voltage output range is DIP-switch selectable and may be set to respond inversely with respect to the input. Once selected via the DIP-switches the input range can be further adjusted using a push-button sampling method and a calibration source. The current output may be active (sourcing) or passive (as a 2-wire output) providing unmatched application flexibility. Two LEDs on the front indicate alarm, power and provide feedback for the push-button ranging method. PC Software provides enhanced operation features: Square-root extraction, reverse burnout detection (normally upscale), alarm configuration , input and output scaling, digital filtering and more. Signal Conditioning selection and use made easy from ioSelect, powered by Seneca (Z109REG2).

General Specifications

Input

Voltage	Bipolar up to 20 V
Input Impedance	1 M Ω
Resolution	1 mV
Current	Bipolar up to 20 mA
Input Impedance	2.5 Ω
Resolution	1 μ A
RTD	Pt100, Pt500, Pt1000, Ni100
	2, 3 or 4-wire
Excitation Current	0.56 mA
Resolution	0.1 $^{\circ}$ C
Thermocouple	J, K, R, S, T, B, E, N ranges
Resolution	2.5 μ A
Input Impedance	>5 M Ω
Potentiometer	500 Ω to 10 k Ω , f.s.
Excitation	300 mV
Input Impedance	>5 M Ω

Output

Current	0-20 mA, 4-20 mA, and inverse
Output Drive	600 Ω (12 V @ 20 mA)
	Active or Passive (2-Wire)
Voltage	0-5 V, 1-5 V, 0-10 V and 10-0 V
Min. Load	2 k Ω (5 mA @ 10 V)
Relay Output	SPST
Rating	1 A, 30 Vac.Vdc (software enabled)
Power	10-40 Vdc or 19-28 Vac (50-60 Hz)

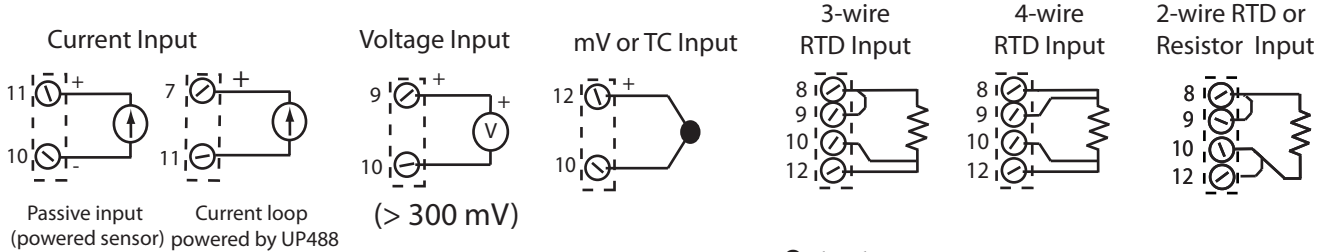
Performance Specifications

Isolation	1500 V (3-way)
Power Consumption	2.5 W max, 1.6 W typical
Sampling Rate	(Software selectable) 240 sps (11 bit +sign) to 15 sps (15 bit +sign)
Response Time	35 mS to 140 mS
Temperature	
Operating	-10 to 60 $^{\circ}$ C (14 to 140 $^{\circ}$ F)
Storage	-40 to 85 $^{\circ}$ C (-40 to 85 $^{\circ}$ F)
Humidity	Min: 30 %, Max: 90 % @ 40 $^{\circ}$ C non-condensing (All input types)
Calibration error	0.1 % referred to max. range
Linearity	
Voltage/Current	0.05 %
TC Type J, K, E, T, N	0.2 $^{\circ}$ C
Type R, S	0.5 $^{\circ}$ C
Type B	1.5 $^{\circ}$ C
Pot (resistor)	0.05 %
Pt100 RTD	T>0 $^{\circ}$ C = 0.02 %, T<0 $^{\circ}$ C = 0.05 %
Influence of Wire Resistance	0.1 μ V/ Ω
Thermal Coefficient	0.01 %/ $^{\circ}$ C
Error Due to EMI	< 1 %
CJC error	2 $^{\circ}$ C in ambient range 0 to 50 $^{\circ}$ C
Voltage Output	0.3 %
Calibration	0.1 %
Protection	400 W/mS (Impulse over-voltage)
Current	200 mA continuous
All others	60 V continuous
EEPROM memory storage	40 years
Dimensions	0.69 x 3.84 x 4.14 in (wxhxd)
Weight	140 g (5 oz)

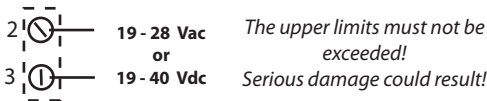
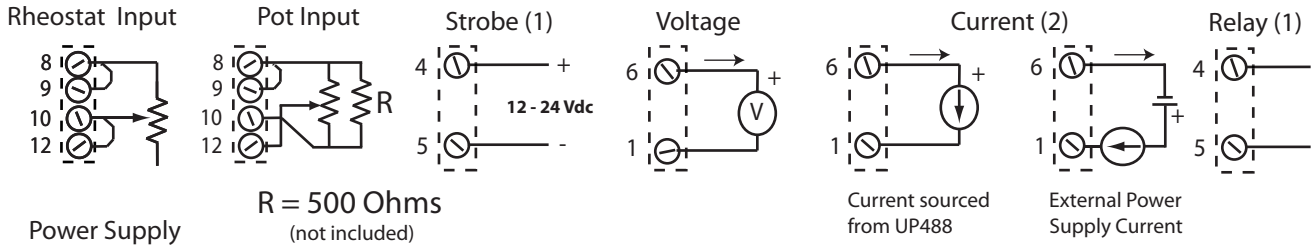
Installation Instructions

Install on horizontally mounted TS 35 DIN rail. For optimum operation and product life make sure adequate ventilation is provided. Severe operating conditions are defined as follows: • Power supply voltage > 30 Vdc or 26 Vac; • Input sensor powered from UP488; • Output current sourced from UP488. Modules may need to be separated by at least 5 mm if: The panel temperature exceeds 45 °C and one or more of the above conditions exist. The panel temperature exceeds 35 °C and 2 or more of the above conditions exist.

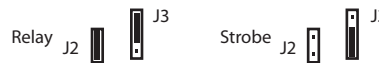
Wiring Diagrams



Output



(1) Relay or Strobe may be selected via internal jumpers J2 and J3 as shown:



(2) Active or Passive Current Output may be selected via internal jumper 9 as shown:



Manual Input and Output Configuration

Select the input range and the output range using the DIP switches and the ranging table on the following page. The UP488 will provide accurate signal conditioning without using a calibrator to set the input.

To verify calibration or if a range is needed that is not available by setting the switches, the following push button method may be utilized:

1. Remove power.
2. Set SW1 and SW2 per input type and ranging table (SW2:1-6 off).
3. Apply specified power to the UP488.
4. Connect a calibrated source to the desired input terminals.
5. Adjust the calibrator to zero % input. Press and hold the ZERO or START button until the green LED flashes, which indicates a stored value.
6. Adjust the calibrator to zero % input. Press and hold the SPAN or END button until the green LED flashes.

A PC and UPSetup software or the UniCal may be used to set the parameters of the UP488. The alarm, filtering and the square root function are only available through UPStart or the UniCal. The UniCal may also function as a DC source or meter.

Input Type Selection	Range Selection	Output Selection																																																																																																																																					
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Key: ON = ON (arrow pointing up), Side view (black rectangle)

NOTE: DO NOT CHANGE THE DIP SWITCHES WITH POWER APPLIED. THE DEVICE MAY BE DAMAGED!

DIP-Switch Selectable Input Ranges



Range		Voltage		Resistance		Current		Potentiometer	
		ZERO	SPAN	ZERO	SPAN	ZERO	SPAN	ZERO	SPAN
	1	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	2	0 V	100 mV	0 Ω	1 kΩ	0 mA	1 mA	0 %	40 %
	3	400 mV	200 mV	500 Ω	2 kΩ	1 mA	2 mA	10 %	50 %
	4	1 V	500 mV	1 kΩ	3 kΩ	4 mA	3 mA	20 %	60 %
	5	2 V	1 V	2 kΩ	5 kΩ	-1 mA	4 mA	30 %	70 %
	6	-5 V	5 V	5 kΩ	10 kΩ	-5 mA	5 mA	40 %	80 %
	7	-10 V	10V	10 kΩ	15 kΩ	-10 mA	10 mA	50 %	90 %
	8	-20 V	20 V	15 kΩ	25 kΩ	-20 mA	20 mA	60 %	100 %
Range		Ni 100		Pt 100		Pt 500		Pt 1000	
		ZERO	SPAN	ZERO	SPAN	ZERO	SPAN	ZERO	SPAN
	1	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	2	-50 °C	20 °C	-200 °C	50 °C	-200 °C	0 °C	-200 °C	0 °C
	3	-30 °C	40 °C	-100 °C	100 °C	-100 °C	50 °C	-100 °C	50 °C
	4	-20 °C	50 °C	-50 °C	200 °C	-50 °C	100 °C	-50 °C	100 °C
	5	0 °C	80 °C	0 °C	300 °C	0 °C	150 °C	0 °C	150 °C
	6	20 °C	100 °C	50 °C	400 °C	50 °C	200 °C	50 °C	200 °C
	7	30 °C	150 °C	100 °C	500 °C	100 °C	300 °C	100 °C	300 °C
	8	50 °C	200 °C	200 °C	600 °C	150 °C	400 °C	200 °C	400 °C
Range		J Thermocouple		K Thermocouple		R Thermocouple		S Thermocouple	
		ZERO	SPAN	ZERO	SPAN	ZERO	SPAN	ZERO	SPAN
	1	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	2	-200 °C	100 °C	-200 °C	200 °C	0 °C	400 °C	0 °C	400 °C
	3	-100 °C	200 °C	-100 °C	400 °C	100 °C	600 °C	100 °C	600 °C
	4	0 °C	300 °C	0 °C	600 °C	200 °C	800 °C	200 °C	800 °C
	5	100 °C	400 °C	100 °C	800 °C	300 °C	1000 °C	300 °C	1000 °C
	6	200 °C	500 °C	200 °C	1000 °C	400 °C	1200 °C	400 °C	1200 °C
	7	300 °C	800 °C	300 °C	1200 °C	600 °C	1400 °C	600 °C	1400 °C
	8	500 °C	1000 °C	500 °C	1300 °C	800 °C	1750 °C	800 °C	1750 °C
Range		T Thermocouple		B Thermocouple		E Thermocouple		N Thermocouple	
		ZERO	SPAN	ZERO	SPAN	ZERO	SPAN	ZERO	SPAN
	1	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	2	-200 °C	50 °C	0 °C	500 °C	-200 °C	50 °C	-200 °C	200 °C
	3	-100 °C	100 °C	500 °C	600 °C	-100 °C	100 °C	-100 °C	400 °C
	4	-50 °C	150 °C	600 °C	800 °C	0 °C	200 °C	0 °C	600 °C
	5	0 °C	200 °C	700 °C	1000 °C	100 °C	300 °C	100 °C	800 °C
	6	50 °C	250 °C	800 °C	1200 °C	150 °C	400 °C	200 °C	1000 °C
	7	100 °C	300 °C	1000 °C	1500 °C	200 °C	600 °C	300 °C	1200 °C
	8	150 °C	400 °C	1200 °C	1800 °C	400 °C	800 °C	500 °C	1300 °C

*** Disconnect power from the UP488 prior to adjusting any switches to prevent any damage to the module. Resulting damage is not covered by the warranty. ***



UniCal

The IOS-UniCal is a versatile device that is a UP488 configuration tool, a DC voltage and current source or a DC voltage or current meter. All UP488 parameters may be uploaded, adjusted and downloaded without the need for a PC. Once a configuration is loaded in the UniCal it may be downloaded repeatedly to as many UP488 as desired. The UniCal is rechargeable and will work for many hours

Default Settings

Input: Voltage
Range: 0-10 V
Output: Voltage
Range: 0-10 V,
Normal

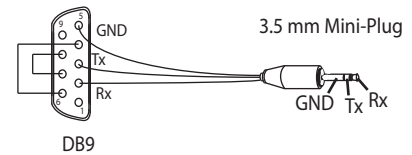
UPSetup - Configuration with a PC

By using a PC and UPSETUP software it is possible to set other normally fixed parameters:

- Additional input types
- Digital Filtering
- Square Root Extraction
- Downscale Burnout
- Limit Alarm Parameters
- Input Scaling
- Output Scaling
- Value of the Analog Output in case of Error
- Rejection of Power Frequency
- Sampling Frequency/Resolution
- 2, 3 or 4 Wires for Thermal Resistance (RTD)
- Fault Relay Condition



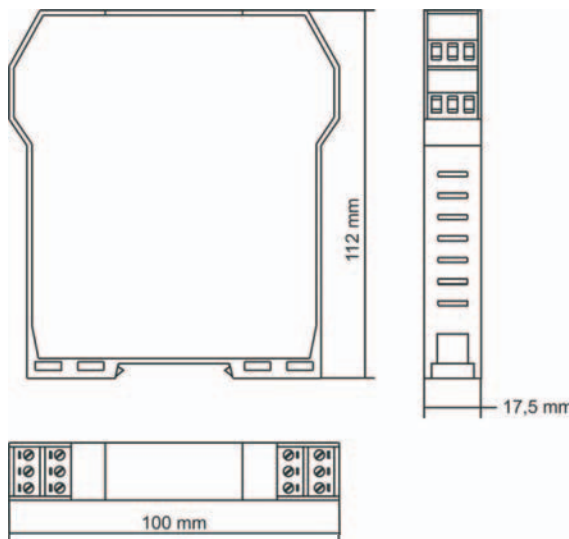
RS232 Serial Port Cable



LED Status Indication

Green LED	Meaning
Flashing Fast	Output range, Burn Out or Internal Fault
Flashing Slow	Error on DIP Switch Setting
Steady On	Power Supply Present
Yellow LED	
On	Alarm Condition (Contact Open)

Dimension Diagram



Terminal Connections

1. Output Common
2. Power
3. Power
4. Output Relay
5. Output Relay
6. Output Source
7. Input Current Source
8. RTD/Potentiometer Input
9. Voltage +/RTD/Resistance Input
10. Current-/Voltage-/TC/RTD/Resistance Input
11. Current Input
12. TC+ / RTD Common/Pot Wiper



EN61000-6-4 / 2002
EN61010-1/2001
EN61000-6-2 / 2005
EN60742

Seneca Z109REG2

Ordering Information:

IOS-UP-488

Universal Input Isolating Signal Conditioner

IOS-Z109REG2

Universal Input Isolating Signal Conditioner

Accessories:

IOS-UP-488-SETUP

UP488 PC configuration software and cable

IOS-UNICAL

UP488 Configurator, DC Calibrator and Multimeter