TRANSDUCERS

OPTIONS FOR MODEL UCP-422

M OPTION

DESCRIPTION

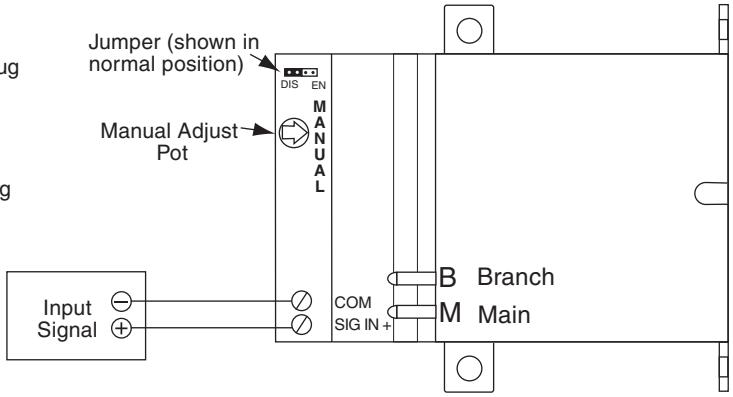
The **M Option Manual Output Adjust** allows local adjustment of the Model UCP-422 output. This feature simplifies checkout and troubleshooting and is available in both loop-powered and 24V-powered configurations. The 24V-powered configuration is provided standard when the **M Option** is ordered with the Feedback (**F**), Voltage (**V**), Pulse Width (**44**), or Tri-state (**44T**) options for the Model UCP-422.

UCP-422-M LOOP-POWERED MANUAL ADJUST

For normal operation, place jumper plug over two posts next to DIS (disable).

For manual override, place jumper plug over two posts next to EN (enable). Turn manual pot to adjust output pressure.

Important! The **UCP-422** is loop-powered. For manual override operation, the input signal must be at 20 mA, or 24 VDC may be applied to the input terminals.



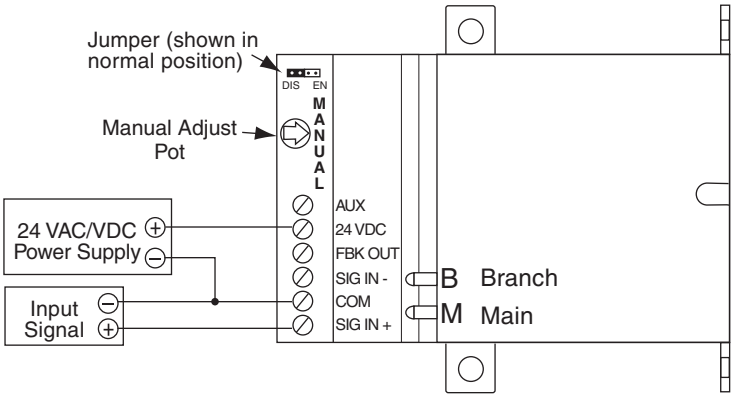
4-20 mA Loop-Powered UCP-422 only
No 24V-Powered Options

UCP-422-M2 24V-POWERED MANUAL ADJUST

For normal operation, place jumper plug over two posts next to DIS (disable).

For manual override, place jumper plug over two posts next to EN (enable). Turn manual pot to adjust output pressure.

Important! For manual override operation, 24V power must be applied to the +24 VDC and COM terminals. 24V power is not required for normal transducer operation, unless options F, V, 44, or 44T are ordered.



UCP-422-M2 with or without
24V-Powered Options (F, V, 44, 44T)

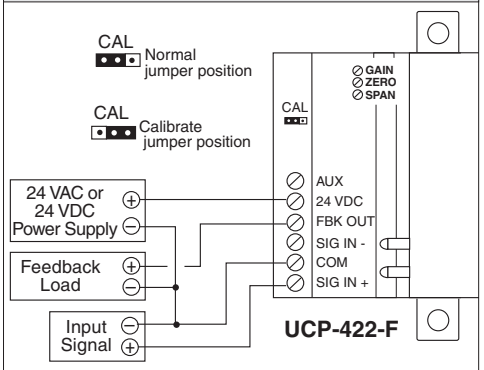
ORDERING INFORMATION

MODEL	DESCRIPTION
UCP-422-M	Electronic/Pneumatic transducer with loop-powered manual output adjust option
UCP-422-M2	Electronic/Pneumatic transducer with 24V-powered manual output adjust option

DESCRIPTION

The **Feedback Loop Control F Option** outputs a current sourcing 4-20 mA signal representative of the branch output pressure. The standard range is 4-20 mA to 3-15 psig (20.7-103.4 kPa). **F Option** also allows for custom ranging the output (i.e., 4-20 mA to 8-13 psig). Any range from 3-15 psig (with a minimum 5 psig span) can be field-calibrated. This option requires 24 VAC/VDC.

WIRING



Power Requirements: 24 VAC @ 180 mA
24 VDC @ 90 mA
Feedback Output: 4-20 mA, 800Ω max

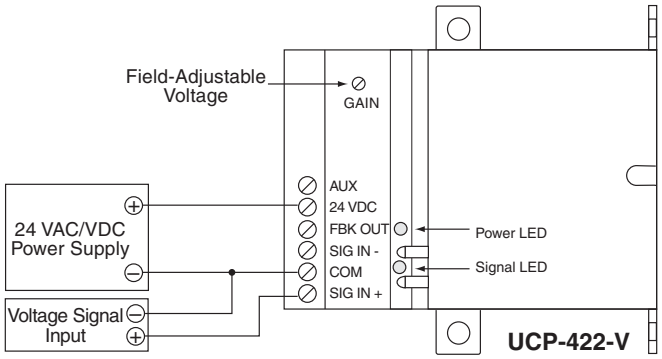
RECALIBRATION

1. Make all connections according to the wiring diagram, or as shown on the job diagrams, in compliance with national and local codes. Make all connections with power removed. Failure to do so could result in circuit board damage.
2. Connect the highest quality gauge available to the branch line of the transducer.
3. Move the jumper to the CAL position (see Wiring).
4. Vary the input signal to the transducer until the gauge indicates the minimum branch pressure desired to output. If the transducer is equipped with the manual output adjust option, set the minimum branch pressure by putting the manual output adjust jumper in the ENABLE position and turning the manual pot.
5. Adjust ZERO pot for 4 mA output from the transducer feedback terminals.
6. Repeat step 4 to set the maximum branch pressure. If maximum pressure cannot be reached, adjust GAIN pot.
7. Adjust the SPAN pot for 20 mA output from the transducer feedback terminals.
8. Since SPAN and ZERO pots are interactive, repeat steps 4, 5, 6, and 7 until results are accurate.
9. Move CAL jumper back to the normal position and move the manual output adjust jumper back to the disable position.
10. Input the maximum input signal and adjust the GAIN pot until the desired maximum pressure is indicated on the gauge.
11. The transducer is now recalibrated to the new output span.

DESCRIPTION

The **Voltage Input V Option** allows the **Model UCP-422** to be controlled by any voltage signal with a 5:1 ratio span. For example, the voltage signal span could be 1-5V, 2-10V, or 3-15V. This option requires 24 VAC/VDC power.

WIRING



Power Requirements
Voltage Option Only: 24 VAC @ 75 mA
24 VDC @ 35 mA

Voltage and Feedback Options:
24 VAC @180 mA
24 VDC @ 90 mA

Voltage Signal Input Impedance: 160 kΩ

RECALIBRATION

1. Make all connections according to the wiring diagram, or as shown on the job diagram, in compliance with national and local codes. Make all connections with power removed. Failure to do so could result in circuit board damage.
2. Connect the highest quality gauge available to the branch line of the transducer.
3. Apply the new input voltage desired for maximum pressure (limited to a range of 5-15 VDC).
4. Adjust the GAIN pot until the pressure gauge shows a slight change in pressure.
5. Now, adjust the GAIN pot until maximum pressure shows on the gauge.
6. The transducer is now recalibrated to the new voltage input span (max to min 5:1 ratio).

ORDERING INFORMATION

MODEL	DESCRIPTION	
UCP-422	Electronic/Pneumatic transducer	
	OPTIONS	
	F	Feedback loop control (4-20 mA/3-15 psig standard)*
	V#	Voltage input **V1**:1-5V, **V2**: 2-10V, **V3**: 3-15V

UCP-422 – [ ]

* Special ranges must be specified at time of order entry.
Important! Options cannot be field-installed.

TRANSDUCERS

OPTIONS FOR MODEL UCP-422

UCO-44, UCO-44T OPTIONS

DESCRIPTION

The **UCO-44** and **UCO-44T Options** are designed to be used with the Kele Model UCP-422 electronic/pneumatic transducer. The **UCO-44 Option** allows the Model UCP-422 to be controlled by a pulse-width modulated (PWM) signal. The **UCO-44T Option** allows the Model UCP-422 to be controlled by a tri-state input signal. These options are mounted in an expander ring attached to the Model UCP-422.

FEATURES

- ***Selectable PWM time base 0.1-2.65, 5.2, 12.85, 25.6, or 0.59-2.93 sec***
- ***Selectable tri-state time base 2.55, 5.1, 12.75, 25.5, 59.9, 90.5, or 119.9 sec***
- ***255-step resolution***
- ***Positive or negative input reference***
- ***AC/DC voltage***
- ***LED indication***

Shown with Optional Pressure Gauge

OPERATION

UCO-44 Option

The **UCO-44 Option** accepts a pulse-width modulated input and produces an internal 4-20 mA current signal that controls the Model UCP-422. The standard time base is 25.6 seconds but is switch-selectable for any of the other four ranges. The **UCO-44 Option** responds to the elapsed time when the controlling computer closes the contacts wired in series with the signal SIG IN + or SIG IN - terminals. Each pulse received will produce a corresponding pressure output. The transducer will hold this signal until given a pulse with a different value.

UCO-44T Option

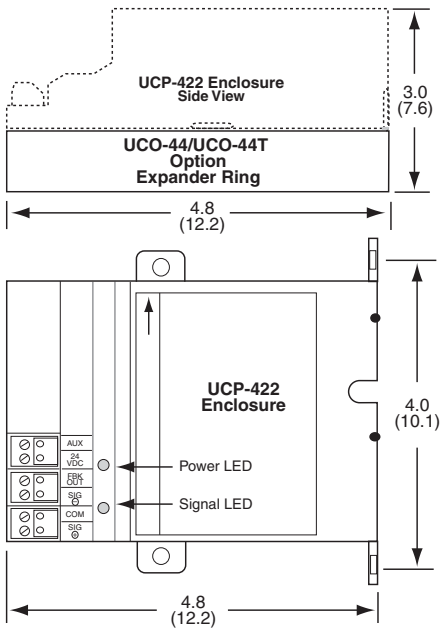
The **UCO-44T Option** is controlled from two discrete contact closures or one tri-state output from a controlling computer. Each signal given the transducer will ramp an internal 4-20 mA signal up or down to control the Model UCP-422. A contact closure wired in series with the SIG IN + terminal will increase the output in proportion to the length of the signal given. A contact closure wired in series with the SIG IN - terminal will decrease the output in proportion to the length of the signal given.

LED INDICATION

PWR LED - On when 24V is present
SIG LED - On only when an input signal is present

DIMENSIONS

in
(cm)

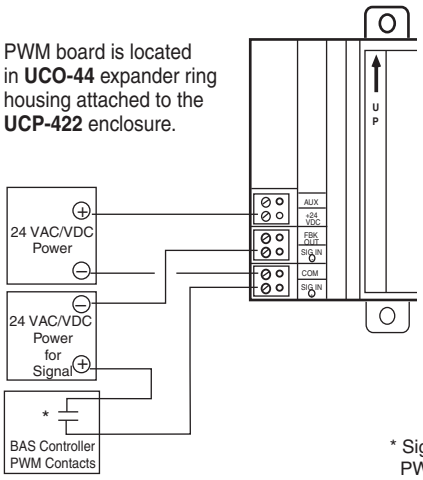


SPECIFICATIONS

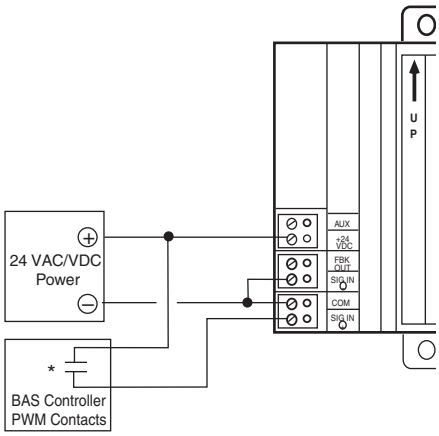
Supply voltage	24 VAC ±10% @ 100 mA (half-wave) 24 VDC ±10% @ 50 mA	**Tri-state time base**	2.55, 5.1, 12.75, 59.9, 90.5, 119.9, or factory-set 25.5 sec (internally DIP switch selectable)
PWM time base	0.1-2.65, 5.2, 12.85, factory-set 25.6, or 0.59-2.93 sec (internally DIP switch selectable)	**Accuracy**	±0.5% of span
		Operating temp	32° to 122°F (0° to 50°C)
Output resolution	255 steps	**Humidity limit**	5% to 95% RH non-condensing
		Warranty	18 months

WIRING

PWM board is located in **UCO-44** expander ring housing attached to the **UCP-422** enclosure.



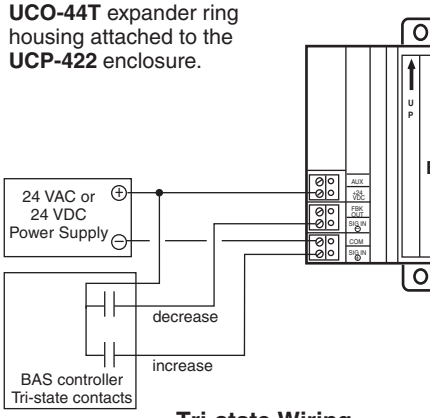
PWM Wiring
Separate 24V Supplies for Power and Signal



* Signal input is optoisolated and polarity insensitive. PWM computer contact can switch either PWM wire lead.

PWM Wiring
Common 24V Supply for Power and Signal

Tri-state board is located in **UCO-44T** expander ring housing attached to the **UCP-422** enclosure.



Tri-state Wiring

CALIBRATION

Important! To change the time base, the transducer must be disassembled. A time base other than the factory setting may be specified at the time of order entry.

Time Base Selection

1. Remove two screws from the bottom plate of the enclosure.
2. Carefully remove the PWM/Tri-state board and locate time base select switches.
3. Set switches 3, 4, and 5 to desired time base as shown in table. Switches 1, 2, 6, 7, and 8 are not used and should be in the off position.
4. Carefully reassemble the transducer, ensuring that socket and pins are properly aligned.
5. No other adjustment or calibration is required.

TABLE 1. TIME BASE SELECTION

PWM TIME BASE (sec)	TRI-STATE TIME BASE (sec)	SWITCH		
		3	4	5
0.1-2.65	2.55	Off	Off	Off
0.1-5.2	5.1	Off	Off	On
0.1-12.85	12.75	Off	On	Off
0.1-25.6 (factory setting)	25.5 (factory setting)	Off	On	On
0.59-2.93	59.9	On	Off	Off
	90.5	On	Off	On
	119.9	On	On	Off

ORDERING INFORMATION

MODEL	DESCRIPTION
UCP-422-44	Electronic / pneumatic transducer PWM option (factory installed)
UCP-422-44T	Electronic / pneumatic transducer tri-state option (factory installed)