



TRANSDUCERS

SEQUENCER CONTROL MODULE - SINGLE STAGE

MODEL UCS-121

DESCRIPTION

The **Model UCS-121** is a solid-state device used to control on/off type loads in HVAC and lighting systems from an analog current or voltage signal. The **Model UCS-121** can be used to convert an analog current or voltage signal from a BAS controller or sensor/transmitter into a SPDT digital output. The **Model UCS-121** is provided with a mounting track or in a hub-mount enclosure for easy installation.

FEATURES

- **One stage of relay control, SPDT**
- **Voltage or current input**
- **24 VAC/VDC power**
- **LED indication of relay status**
- **Adjustable relay setpoint**
- **Adjustable relay differential**
- **Snap-track or hub enclosure**
- **Jumper-enabled time constant**

OPERATION

The **Model UCS-121** accepts a 0.5-20 mA or 0.75-15V input signal to produce a single-stage relay output. The relay has a single-turn potentiometer adjustment to set the trip point. The relay differential is factory set to 0.5 mA or 0.375V but can be easily adjusted in the field using the single-turn differential adjustment potentiometer on the **Model UCS-121**. With the action jumper in the direct DIR position, the relay will energize when the input signal increases to the setting of the setpoint pot SPT and will de-energize when the input signal decreases below the setting of the differential pot DIF. With the action jumper in the reverse REV position, the relay will de-energize when the input signal increases to the setting of the SPT and will energize when the input signal decreases below the setting of the DIF. To enable a 30-second time constant, place the T.C. jumper in the DLY position. The NODLY position removes the time constant.

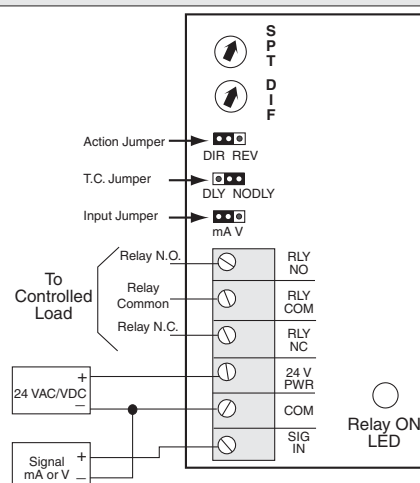


UCS-121 Hub Enclosure



UCS-121

WIRING



SPECIFICATIONS

Supply voltage	24 VAC \pm 10% @ 50 mA (half-wave) 24 VDC \pm 10% @ 25 mA
Input signal	0.5-20 mA or 0.75-15 VDC jumper selectable
Factory relay setting	12 mA, 9 VDC
Output	One SPDT relay
Relay rating	5A @ 120 VAC
Accuracy/Repeatability	\pm 1%
Setpoint adjustment	Single-turn potentiometer
Time constant	30 seconds, jumper enabled

Input impedance	250 Ω (mA input) 10 k Ω (V input)
Operating temp	32° to 158°F (0 to 70°C)
Humidity	5% to 95% RH non-condensing
Dimensions	
Track mount	3.25"H x 1.5"W x 1.25"D (8.24 x 3.8 x 3.2 cm)
Hub enclosure	4"H x 2.25"W x 1.75"D (10.2 x 5.7 x 4.4 cm)
Weight	0.4 lb (0.18 kg)
Relay differential	0.5 mA or 0.375V, factory settings, adjustable by differential potentiometer, 0.2-2V or 0.25-3 mA
Warranty	18 months



CALIBRATION

Setup and Calibration

The **UCS-121** can be ordered preset to the application to save time during installation. Specify the **-C** option for factory setup and calibration. The **UCS-121** can also be set up and calibrated in the field.

Input Jumpers

Set the input jumper for the type of input signal, mA or V, to be used. Set the action jumper for either direct DIR or reverse REV action. See Operation for a description of direct and reverse action.

Setpoint Adjustment

1. When making adjustments, the load being controlled should be disconnected from the **UCS-121** and the T.C. jumper placed in the NODLY position.
2. Connect a meter in series with the SIG IN terminal and the 0.5-20 mA signal to read a current signal. To read a voltage input, 0.75-15 VDC, connect the meter across the COM and SIG IN terminals.
3. Turn the setpoint pot SPT fully counterclockwise to its minimum position.
4. Adjust the input signal to the desired relay trip point.
5. Turn the setpoint pot clockwise until the RELAY ON LED turns off (or turns on if the action jumper is in the REV reverse position).
6. Adjust the relay trip point by slowly turning the setpoint pot SPT counterclockwise until the RELAY ON LED turns on (or turns off if the action jumper is in the REV reverse position).
7. The relay trip point is now set. Verify setting by varying the input signal up and down and observing the RELAY ON LED.
8. Set the jumper to the DLY position to add a 30-second time constant or to the NODLY position for no time constant.

Differential Adjustment

The relay differential is factory set for 0.5 mA or 0.375V, which should be suitable for most applications without requiring any adjustment. If the relay differential must be adjusted, follow these steps:

1. When making adjustments, the load being controlled should be disconnected from the **UCS-121** and the T.C. jumper placed in the NODLY position.
2. The relay setpoint should be set prior to adjusting the relay differential. See instructions above.
3. Connect a meter in series with the SIG IN terminal and the 0.5-20 mA signal to read a current signal. To read a voltage input, 0.75-15 VDC, connect the meter across the COM and SIG IN terminals.
4. Adjust the input signal to any value greater than the relay trip point setting so that the RELAY ON LED turns on (or turns off if the action jumper is in the REV reverse position).
5. Turn the differential pot DIF fully clockwise to its maximum position.
6. Adjust the input signal to the desired relay differential value. The relay differential value should be equal to the setpoint value minus the required relay differential. For example, if the relay setpoint is adjusted for 10V and a 1V differential is required, the input signal should be adjusted for a input value of 9V (10V - 1V = 9V).
7. Turn the differential pot very slowly counterclockwise until the RELAY ON LED turns off (or turns on if the action jumper is in the REV reverse position).
8. The relay differential is now set. Verify settings by varying the input signal up and down and observing the RELAY ON LED.
9. Set the jumper to the DLY position to add a 30-second time constant or to the NODLY position for no time constant.

ORDERING INFORMATION

MODEL	DESCRIPTION
UCS-121	Sequencer control module, single stage
UCS-121-H	Sequencer control module, single stage, hub enclosure
-C	Factory-set custom relay settings (specify trip point, differential, time constant, and direct or reverse acting when ordering)
UCS-121-R	UCS-121 with flying leads for remote 0-10 kΩ potentiometer input
<i>Example:</i>	UCS-121-H-C single-stage sequencer, hub enclosure, factory-set relay

RELATED PRODUCTS

TR-3	Extra long 3.25" x 4 ft snap track for the UCS-121
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