



TRANSDUCERS

UNIVERSAL ANALOG TRANSDUCERS

MODELS UAT-1, UAT-2

DESCRIPTION

Model UAT-1 and UAT-2 Universal Analog Transducers are used for analog signal conversion or signal scaling. They will accept a DC voltage, current, or resistive input signal and output a non-isolated voltage or current output. These transducers can be direct or reverse acting and are easily field calibrated to meet a wide variety of applications.

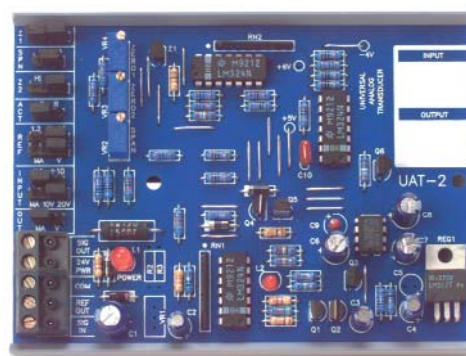
The **Model UAT-1** is furnished in a unique slim-line design housing that saves panel space, and it can be ordered with an optional DIN rail mounting adapter. The **Model UAT-2** is a snap-track mounted version, and its operation is identical to the **Model UAT-1**.

FEATURES

- *DC voltage, current, or resistive input*
- *Inputs from 0-20 VDC, 0-40 mA, or 0-10 k Ω*
- *Input and output jumper selectable and easily field calibrated*
- *Outputs from 0-18 VDC or 0-20 mA*
- *Direct or reverse acting, jumper selectable*
- *Reference voltage and current available to power an input device or sensor*



UAT-1



UAT-2



SPECIFICATIONS

Power	24 VDC $\pm 10\%$ @ 50 mA max 24 VAC $\pm 10\%$ @ 100 mA max (half-wave)
Signal inputs (jumper selectable, adjustable)	
Low range	0-1.09 VDC, 55 mV min span* 0-2 VDC, 100 mV min span* 0-4 mA, 0.22 mA min span*
Normal range	0-10.9 VDC, 550 mV min span* 0-20 VDC, 1V min span* 0-40 mA, 2.2 mA min span*
Three-wire potentiometer	0-100 Ω min to 0-10 k Ω
Two-wire variable resistance	0-100 Ω min to 0-5 k Ω
Input impedance	0-4 mA, 0-40 mA: 250 Ω 0-1.09V, 0-10.9V: 156 k Ω 0-2V, 0-20V: 293 k Ω
Signal outputs (jumper selectable, adjustable)	0-18 VDC @ 20 mA max load 0-20 mA @ 650 Ω max load
Action (jumper selectable)	Direct or reverse acting

Reference output for sensor excitation (jumper selectable) Voltage source

1.2 VDC @ 12 mA max (100 Ω min),
5 VDC @ 12 mA max (417 Ω min),
10 VDC @ 12 mA max (834 Ω min)

Current source

1.2 mA @ 5 k Ω max,
5 mA @ 1.5 k Ω max,
10 mA @ 750 Ω max

Output zero/span Indication

Adjustable from 0 to full scale
Power LED

Linearity

<0.1% of span

Operating temp

32° to 158°F (0° to 70°C)

Humidity

5% to 95% non-condensing

Dimensions

UAT-1

3.4"H** X 2"W X 4.8"D
(8.6 x 5.1 x 12.4 cm)

UAT-2

3.25"H x 4.6"W x 1"D
(8.3 x 11.8 x 2.54 cm)

Weight

0.8 lb max (0.36 kg)

Warranty

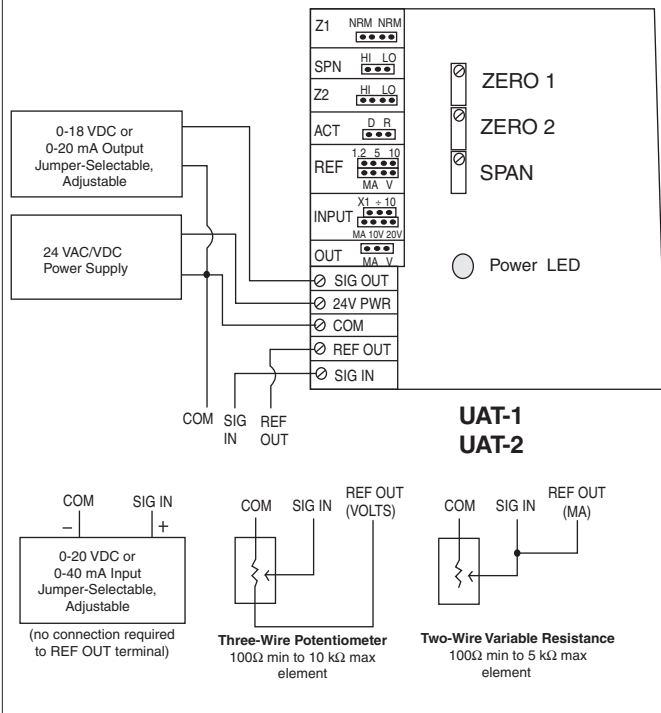
18 months

*Minimum span for full output swing (0-18V, 0-20 mA)

**Add 1.2" (3.0 cm) for mounting tabs



WIRING



INPUT JUMPERS

INPUT SIGNAL RANGE	INPUT JUMPER POSITIONS	REF JUMPERS
0-1.09V, 55 mV min span	+ 10 10V	If REF output is required for external sensor excitation, jumper for appropriate voltage or current source. If not used, set jumpers to: V 10
0-2V, 100 mV min span	+ 10 20V	
0-10.9V, 550 mV min span	x 1 10V	
0-20V, 1V min span	x 1 20V	
0-4 mA, 0.22 mA min span	+ 10 mA	
0-40 mA, 2.2 mA min span	x 1 mA	V 10
Three-wire potentiometer 10V ref (834Ω min)	x 1 (None)	V 10
Three-wire potentiometer 5V ref (417Ω min)	x 1 (None)	V 5
Three-wire potentiometer 1.2V ref (100Ω min)	x 1 (None)	V 1.2
Two-wire variable resistance 10 mA ref (750Ω max)	If (ref mA) x (max Ω) ≥ 1.09V	mA 10
Two-wire variable resistance 5 mA ref (1.5 kΩ max)	x 1 (None) If (ref mA) x (max Ω) ≤ 1.09V	mA 5
Two-wire variable resistance 1.2 mA ref (5 kΩ max)	+ 10 (None)	mA 1.2

CALIBRATION

- Set output OUT jumper to V or MA as desired.
- Set INPUT jumpers for type and range of input signal present. See "Input Jumpers" table above.
- If using the reference output for sensor excitation, set the two REF jumpers for the proper output type and value. Choices are 1.2V, 5V, 10V, 1.2 mA, 5 mA, 10 mA. If not using the reference output, jumper as a voltage output.
- Set action ACT jumper to direct D or reverse R as desired.
- Set span jumper SPN to LO. Turn SPAN pot clockwise 25 turns.
- Remove both Z1 jumpers. Trim ZERO 1 pot for minimum desired output value. Presence/absence of input signal has no effect on this adjustment.
- Reinstall both Z1 jumpers. Set Z2 jumper to LO position.
- Apply an input signal value that is to produce minimum output. Trim ZERO 2 pot for minimum output value (same value set in step 6). If desired value cannot be achieved, remove Z2 jumper and trim ZERO 2 pot again. If desired value is still not achieved, place Z2 jumper in HI position and trim ZERO 2 pot again.
- Apply input signal value that is to produce maximum output. Trim SPAN pot for maximum output value. If SPAN pot does not go high enough, move the SPN jumper from LO position to HI position.
- Repeat steps 8 and 9 until both minimum and maximum output values are correct. Typically, just one more pass is sufficient.
- Apply a midpoint input signal. Verify that output goes to center of output range.

ORDERING INFORMATION

MODEL	DESCRIPTION
UAT-1	Universal analog enclosed/field-calibrated transducer
UAT-2	Universal analog snap-track mounted/field-calibrated transducer
OPTIONS	
C	Factory calibration (specify input and output when ordering)
47	DIN rail mounting adapter (UAT-1 only)

UAT-1 - C **Example: UAT-1C** Universal analog transducer with factory calibration

RELATED PRODUCT UCM-SPA 0-10 kΩ Three-wire pot with stainless steel plate