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Rev. A - 3/26/2008

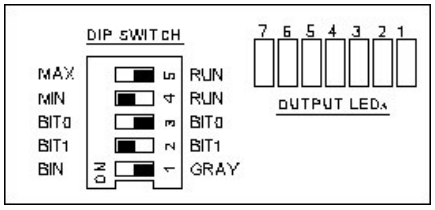
SWELL AND CRESCENDO ENCODER – MODEL UAE128P – PN3450.15

The UAE128P is an analog encoder that was designed to accept inputs from variable resistors (a.k.a. POTs) typically found in an organ console. The POT is usually linked mechanically to an expression shoe or crescendo pedal. The UAE128P converts the input to a digital voltage output capable of driving swell shades or organ control systems. The resolution of the output can be configured by an onboard DIP-switch for 4, 5, 6 or 7-bit operation. This means that the voltage produced by the pot can be presented as 16, 32, 64 or 128 stage binary or *Gray code.

FEATURES:

- Operates from 10 to 28 VDC
- Positive outputs 10 – 28 VDC
- Output currents to 0.1A per output
- POT voltage fixed and supplied by the UAE128P
- POT values from 500 ohm to 20K ohm acceptable
- LED output indicator
- Maximum and minimum limit presets
- Programmable 4 to 7 bit Gray code output
- Programmable 4 to 7 bit binary output
- Reverse polarity protection
- Internal self reset 0.75 A fuse
- Direct operation with OSI Model 251 SSO for 32 or 64 stages

DIP SWITCH PROGRAMMING:



The UAE128P is configured by a five-position DIP switch. In addition, 7 LEDs are provided to aid in configuration and to monitor the digital outputs during operation. Figure 1 shows the location of the switch and LEDs .

*** Note:** Gray code differs from binary code in that each progressive output only changes one bit. This eliminates false codes during output changes. The code is named for Mr. Frank Gray and not the color gray. Although he did not invent it, he described and used it in his 1953 patent and his name became universally associated with this type of code.

DIP Switch – Position 1:

- ON – Sets operation to binary outputs
- OFF – Sets operation to Gray outputs

DIP Switch – Position 2 and 3:

- ON – ON 4-Bit, 16 stage output (General Use)
- ON – OFF 5-Bit, 32 stage output (SSO 251 & Crescendo)
- OFF – ON 6-Bit, 64 stage output (SSO 251 & Crescendo)
- OFF – OFF 7-Bit, 128 stage output (Crescendo Only)

DIP Switch – Position 4:

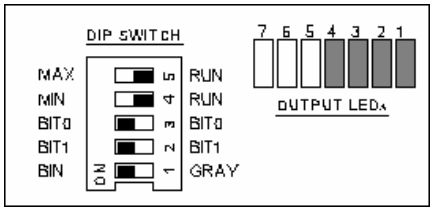
- ON – Sets minimum travel limit (Only active during power up)
- OFF – Hold minimum setting

DIP Switch – Position 5:

- ON – Sets maximum travel limit (Only active during power up)
- OFF – Hold maximum setting

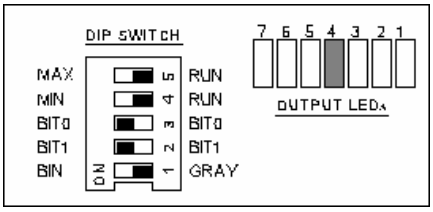
USING THE LEDS TO VERIFY CONFIGURATION:

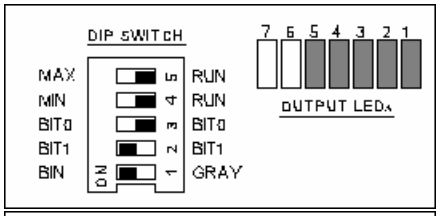
The following examples show the LED indications for typical switch settings with the *POT set to maximum travel or input P+ shorted to input W.*



FOUR BIT OUTPUT

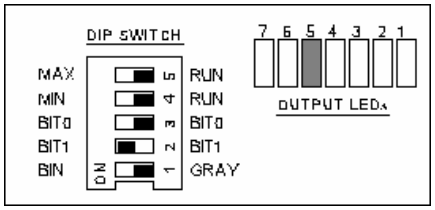
LEDs 1 thru 4 are active.
Binary shown on the left.
Gray on the right.

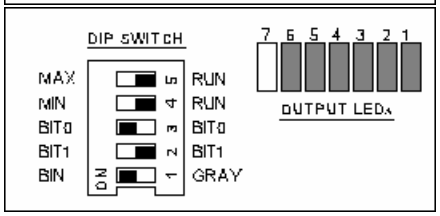




FIVE BIT OUTPUT

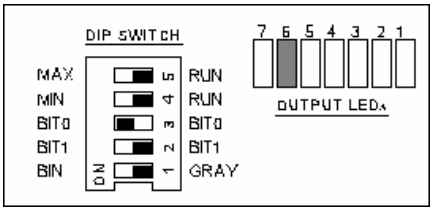
LEDs 1 thru 5 are active.
Binary shown on the left.
Gray on the right

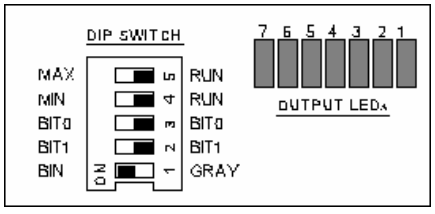




SIX BIT OUTPUT

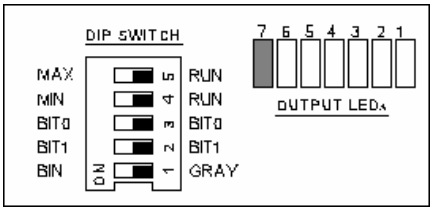
LEDs 1 thru 6 are active.
Binary shown on the left.
Gray on the right.





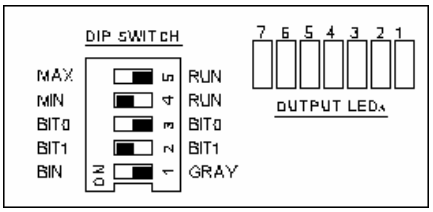
SEVEN BIT OUTPUT

LEDs 1 thru 7 are active.
Binary shown on the left.
Gray on the right



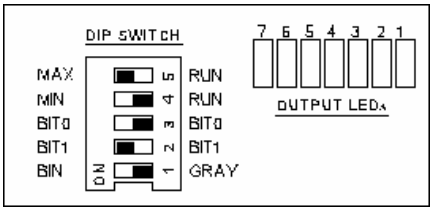
SETTING THE LIMITS OF POT TRAVEL:

In most applications it is not possible to have the POT exactly at zero ohms at minimum travel or rated ohms at maximum travel. For this reason, the limits of travel of the POT along with its associated mechanical linkage can be set with DIP switch - position 4 and 5. Typical operation is best demonstrated using a swell shoe. The shoe is installed with a POT attached and adjusted for optimum mechanical travel with suitable stops to limit possible damage. At this time there should be *no power* supplied to the UAE128P. In this example, a 5 bit Gray code is shown.



- Set DIP – position 4 as shown on the left.
- Apply power to the UAE128P .
- Place the shoe in the shades fully closed position.
- Move DIP – position 4 to the RUN position.
- Turn the power off.

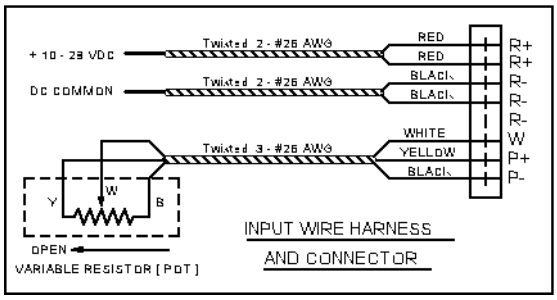
The lower limit is now set and its value saved in memory. The upper limit is set in a similar way.



- Set DIP – position 5 as shown on the left.
- Apply power to the UAE128P.
- Place the shoe in the fully open position.
- Move DIP – position 5 to the RUN

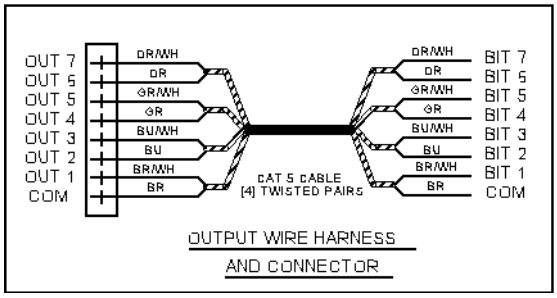
The upper limit is now set and its value saved in memory. After both limits are set, the full range is available for output. Moving the shoe from closed to open should display every Gray or binary combination for the number of bits selected. **If both position 4 and 5 are set to MIN and MAX when the power is turned on**, the UAE128P will default to factory settings i.e. the maximum possible travel.

WIRING THE INPUTS:

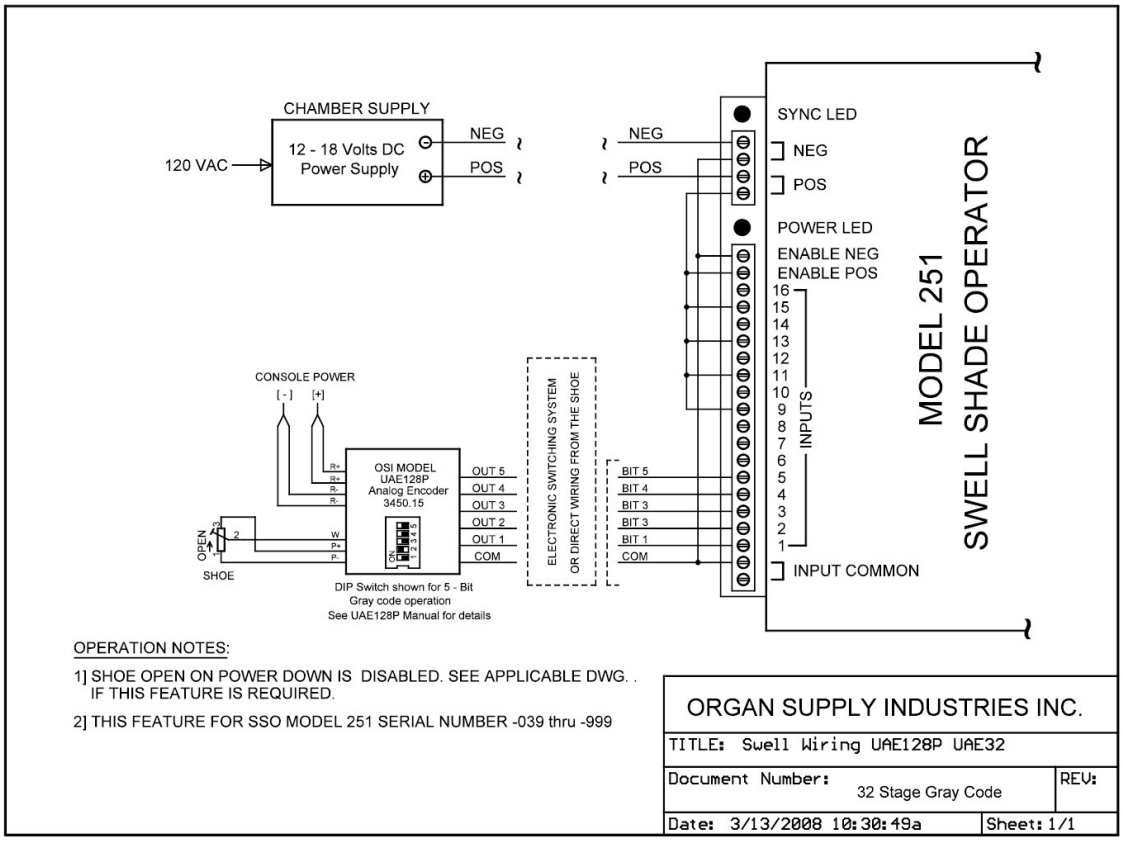


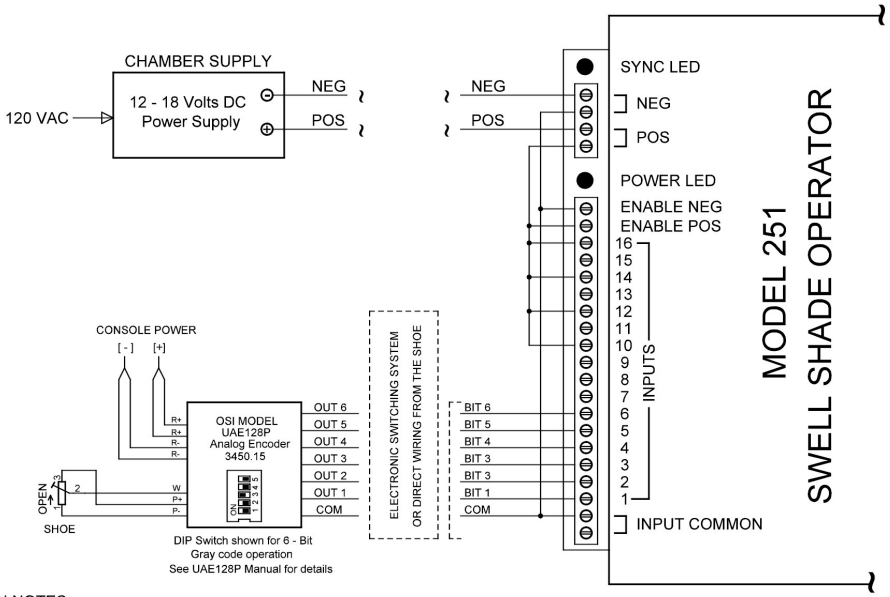
An input wiring harness, approximately three feet in length, comes with the UAE128P. The end that plugs into the board is pre-terminated with an 8-pin connector while the other end fans out for connections to the console power supply and the POT. It is recommended that the board be located as close to the POT as possible to minimize electrical interference.

WIRING THE OUTPUTS:



An output wiring harness, approximately ten feet in length, comes with the UAE128P. The end that plugs into the board is pre-terminated with an 8-pin connector while the other end fans out for connection directly to shade operator or to an organ control system.





OPERATION NOTES:

1] SHOE OPEN ON POWER DOWN IS DISABLED. SEE APPLICABLE DWG. . IF THIS FEATURE IS REQUIRED.

2] THIS FEATURE FOR SSO MODEL 251 SERIAL NUMBER -224 thru -999

ORGAN SUPPLY INDUSTRIES INC.	
TITLE: Swell Wiring UAE128P UAE64	
Document Number: 64 Stage Gray Code	REV:
Date: 3/13/2008 10:33:50a	Sheet: 1/1