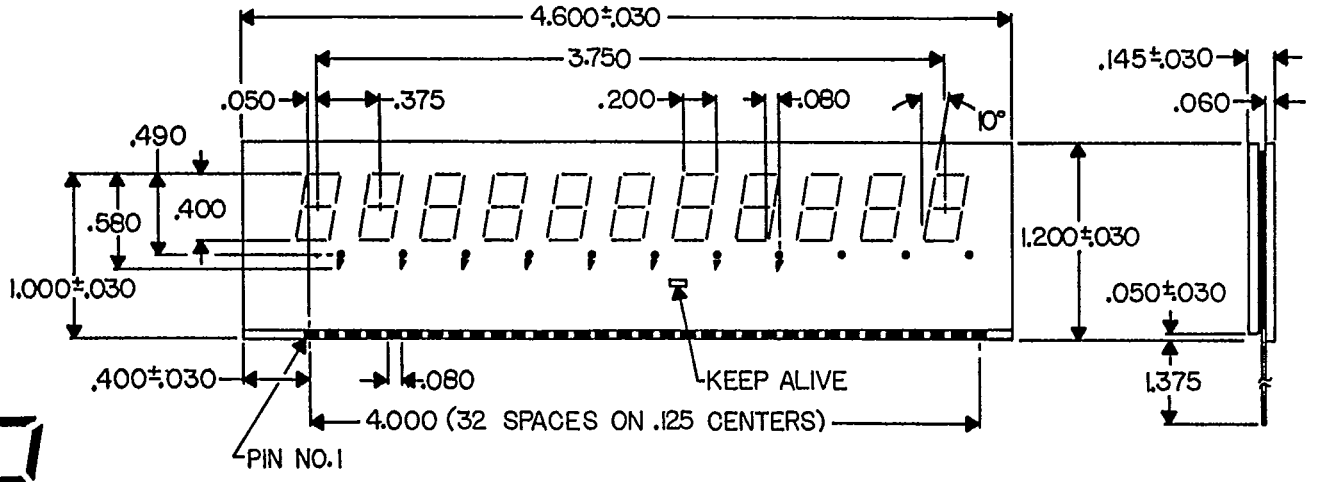
T-41-33

DISPLAYS, INC.
31 INDUSTRIAL PARK ROAD
LEWISTOWN, PA. 17044
(717) 242-2541
FAX: (717) 248-8680

AR11400 - DIGITAL (.4 inch high) DISPLAYS

The Model AR11400 is an 11 digit display panel with decimal points and commas. It is a long life gas discharged, segmented display panel in sealed envelopes. This display has .40 inch high characters.



FONT DETAIL

This display is designed to be operated in a multiplexed mode where the cathode drive and decoder circuitry is time shared among all digits of the displays. Like cathode segments for all the digits are bussed.

FEATURES

- All Glass Construction
- Minimal Connections
- 7 Segment Format
- Sunlight Readable
- High Reliability
- Completely Flat Design
- Neon Orange Color
- Excellent Contrast
- Wide Viewing Angle (140°)
- Thin Package (.3 inch)
- Low Power Consumption

PIN OUT

PIN	FUNCTION	PIN	FUNCTION
1	F Segment Cathode	18	Anode - Keep Alive
2	Anode - 1st Digit on Left	19	Keep Alive Cathode
3	G Segment Cathode	20	Anode - 5th Digit from Right
4	Anode - 2nd Digit from Left	21	NC
5	E Segment Cathode	22	Anode - 4th Digit from Right
6	NC	23	NC
7	D Segment Cathode	24	NC
8	Anode - 3rd Digit from Left	25	Comma Cathode
9	NC	26	Anode - 3rd Digit from Right
10	Anode - 4th Digit from Left	27	Decimal Point Cathode
11	NC	28	Anode - 2nd Digit from Right
12	NC	29	C Segment Cathode
13	NC	30	NC
14	Anode - 5th Digit from Left	31	B Segment Cathode
15	NC	32	Anode - 1st Digit on Right
16	Anode - 6th Digit from Left	33	A Segment Cathode
17	NC		

AR11400

Electrical Characteristics at 25° C

Parameter	Units
Panel Voltage Drop (Notes 2, 6) Segment Current = 4.15 mA	130 Vdc Typ.
Initial Ionization Time (Notes 10, 11) Peak Cathode Voltage = - 180V	5 sec max.

Environmental & Optical Characteristics

Parameter	Units
Operating Temperature	0° C to +55° C
Storage Temperature	-40° C to +85° C
Altitude	70,000 ft. max.
Viewing Angle	120°
Brightness	130 ft. l Typ. (Note 4)

Absolute Maximum Rating (See Note 1)

Parameter	Units
Peak Cathode Voltage (Notes 2, 3)	-240 Vdc max.
Cathode Current (Note 5)	4.5 mA max.

Operating Conditions at 25° C (Notes 6, 7, 8)

Parameter	Typical Value
Scan Direction	Left to Right
Segment Cathode Current (Notes 4,5)	3.4 mA
DCKA Cathode Current (Notes 4, 5)	0.50 mA
Peak Cathode Voltage (Notes 2, 3)	-200 Vdc
Cathode Off Voltage (Note 3)	-110 Vdc
Anode Off Voltage (Note 3)	-110 Vdc
Digit Period	2.8 mS
Cathode on Time (Note 12)	2.4 mS
Cathode Blanking Interval	400 uS
Reionization Time (Note 13)	100 uS max.
Cathode Blanking Overlap	200 uS
Display Scan Period	17 mS
Panel Voltage Drop	150V

NOTES:

1. Values beyond which the life of the device may be reduced.
2. Prior to ionization, the voltage between the anode and any cathode may equal this voltage and panel damage will not occur. The peak cathode current must, however, be limited to the absolute maximum rating.
3. Voltage referenced to anode on voltage.
4. Light output is measured using a calibrated Gamma Scientific Model 3030 Photometer mounted normal to an unfiltered panel operating at the typical conditions shown under "Operating Conditions". A 0.006" diameter optical pickup is focused on the center of the segment under test.
5. The peak segment current is the value existing during the digit period.
6. Typical waveforms are shown in Figure 2.
7. Rise and fall times of anode address and cathode select signals shall be 1 uS max. measured between 10% and 90% points.
8. Stray capacitance to ground on any anode or cathode drive line shall not exceed 30 pf. Stray capacitance between any drive lines shall not exceed 20 pf.
9. Ionization time is measured with numeral "0" displayed in the rightmost with all other digits blanked.
10. Non-significant zero blanking is permitted but one digit must always be energized.
11. Digit period minus cathode blanking interval is the cathode on time.
12. Reionization time is measured with all segments and digits displayed.
13. Cathode blanking overlap is the interval between turn-off of anode for previous digit and turn-on of cathodes for next digits.

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