



ELECTRONIC TUBE REFERENCE

ZM1030

Nixie electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

NIXIE

Gas-filled cold-cathode decimal indicator displaying digits 0–9 in measuring and counting instruments. It is the red-filtered member of the ZM1030/ZM1032 pair, using shaped glow cathodes for direct numerical readout.

GENERAL CHARACTERISTICS

BASE DESIGNATION	Noval	BASE PINS	9
NOMINAL HEATER	– / –	PARALLEL HEATER	– / –
HEATING	Indirect; cold cathode	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Nixie	
MAXIMUM PLATE VOLTAGE	170 V
MAXIMUM CATHODE CURRENT	4 mA
MINIMUM REGULATOR CURRENT	3 A
MAXIMUM REGULATOR CURRENT	5 A
STARTING VOLTAGE	170 V
MAINTAINING VOLTAGE	140 V
Single indicator/counting section. Nixie-specific electrical ratings and operating data are retained in TUBE_SECTION_PARAMETER.	

Gas-filled cold-cathode decimal Nixie indicator for digits 0 through 9 in measuring and counting instruments. ZM1030 is the red-filtered member of the ZM1030/ZM1032 pair.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1965 Nixie Valvo

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1965 NIXIE VALVO

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical characteristic
Burning voltage	140 V	Typical glow voltage
Extinction voltage	110 V	Typical characteristic
Display digit height	15 mm	Side-view digits
Display format	10 digits	Biquinary 0-9 display

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC supply voltage	200–300 V	Published examples 200, 220, 250, 300 V
DC cathode current	3–5 mA	Absolute range
Pulse cathode current	—10 mA	Absolute maximum
Off-cathode bias voltage	—70 V	Absolute maximum
Unignited anode supply voltage	90–110 V	Absolute range
Envelope temperature	15–70 degC	Published operating range

SOURCE OPERATING CONDITIONS

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1967 Nixie La Radiotechnique

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1967 NIXIE LA RADIOTECHNIQUE

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition/Starting Voltage	170 V	Published ignition/start value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Recommended/Minimum Supply Voltage	170 V	Published operating condition



SOURCE DATA APPENDIX

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1969 Nixie Valvo

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1969 NIXIE VALVO

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical characteristic
Burning voltage	140 V	Typical glow voltage
Extinction voltage	110 V	Typical characteristic
Display digit height	15 mm	Side-view digits
Display format	10 digits	Biquinary 0-9 display

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC supply voltage	200–300 V	Published examples 200, 220, 250, 300 V
DC cathode current	3–5 mA	Absolute range
Pulse cathode current	—10 mA	Absolute maximum
Off-cathode bias voltage	—70 V	Absolute maximum
Unignited anode supply voltage	90–110 V	Absolute range
Envelope temperature	15–70 degC	Published operating range



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196X Nixie Random Datasheets

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196X NIXIE RANDOM DATASHEETS

Section 1 · Nixie

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Character/Numeral Height	15.5 mm	Published datasheet value
Ignition Voltage Maximum	170 V	Published datasheet value
Cathode/Anode Current Maximum	4 mA	Published datasheet value

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply Voltage Minimum	170 V	Published datasheet value
Extinguishing Voltage Minimum	116 V	Published datasheet value
Cathode Selecting Voltage Minimum	110 V	Published datasheet value



SOURCE OPERATING CONDITIONS

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1971 Nixie RFT

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1971 NIXIE RFT

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical characteristic
Burning voltage	140 V	Typical glow voltage

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Extinction voltage	110 V	Typical characteristic
Display digit height	15 mm	Side-view digits
Display format	10 digits	Biquinary 0-9 display

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC supply voltage	200–300 V	Published examples 200, 220, 250, 300 V
DC cathode current	3–5 mA	Absolute range
Pulse cathode current	—10 mA	Absolute maximum
Off-cathode bias voltage	—70 V	Absolute maximum
Unignited anode supply voltage	90–110 V	Absolute range
Envelope temperature	15–70 degC	Published operating range



SOURCE OPERATING CONDITIONS

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1977 Nixie Tesla

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1977 NIXIE TESLA

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical characteristic
Burning voltage	140 V	Typical glow voltage
Extinction voltage	110 V	Typical characteristic
Display digit height	15 mm	Side-view digits
Display format	10 digits	Biquinary 0-9 display

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC supply voltage	200–300 V	Published examples 200, 220, 250, 300 V
DC cathode current	3–5 mA	Absolute range

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pulse cathode current	—10 mA	Absolute maximum
Off-cathode bias voltage	—70 V	Absolute maximum
Unignited anode supply voltage	90–110 V	Absolute range
Envelope temperature	15–70 degC	Published operating range



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1999 Philips E-Z

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1999 PHILIPS E-Z

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage Vba >170 V	170 S	Supply voltage Vba >170 V
Anode current I, 4 mA	4 A	Anode current I, 4 mA
Cathode selecting voltage Vik 50 Vv	50 a	Cathode selecting voltage Vik 50 Vv
Extinction voltage Vext 110 V	110 v	Extinction voltage Vext 110 V
Screen supply voltage Vbs 50V	50 S	Screen supply voltage Vbs 50V
"Off" anode supply voltage Vba "off" 100 Vv	100 a	"Off" anode supply voltage Vba "off" 100 Vv
The cathodes are internally connected in pairs: 0-1, 2-3, 4-5, 6-7, 8-9	-9 a	The cathodes are internally connected in pairs: 0-1, 2-3, 4-5, 6-7, 8-9.
I[gnition voltage Vign < 170 V	170 v	I[gnition voltage Vign < 170 V
Cathode selecting voltage *) Vkk < 110 V	110 a	Cathode selecting voltage *) Vkk < 110 V
Off" anode supply voltage Vba "off" < 15 V	15 a	Off" anode supply voltage Vba "off" < 15 V
Screen voltage Vg See page 8	8 S	Screen voltage Vg See page 8

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Extinction voltage Vext > 110 V	110 v	Extinction voltage Vext > 110 V
1) The cathode selecting voltage is the voltage difference Vi used for discrimi	1 a	1) The cathode selecting voltage is the voltage difference Vi used for discrimi-
digit to another every 500 hours or less 50000 hours	50000 a	digit to another every 500 hours or less 50000 hours
Anode voltage necessary for ignition Va min. 170 V %)	170 A	Anode voltage necessary for ignition Va min. 170 V %)
Cathode selecting voltage 1) Vik	1 a	Cathode selecting voltage 1) Vik
3) Bulb temperatures below 15 °C result in a reduced life expectancy, larger	3 a	3) Bulb temperatures below 15 °C result in a reduced life expectancy, larger
4) The minimum supply voltage should be as stated. However the use of the	4 s	4) The minimum supply voltage should be as stated. However the use of the
1) The values of Iyy varies with anode current. Each mA increase or decrease	1 v	1) The values of Iyy varies with anode current. Each mA increase or decrease
1y The value of Ig varies with anode current. Each mA increase or decrease of	1 v	1y The value of Ig varies with anode current. Each mA increase or decrease of

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maintaining voltage Vim See page 5 and 6	6 Ma	Maintaining voltage Vim See page 5 and 6

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