

Nixie-Tubes

1. Conventional Nixie Tubes (One Plate/Anode)

With a small additional adapter it is possible to test conventional Nixie tubes very comfortably.

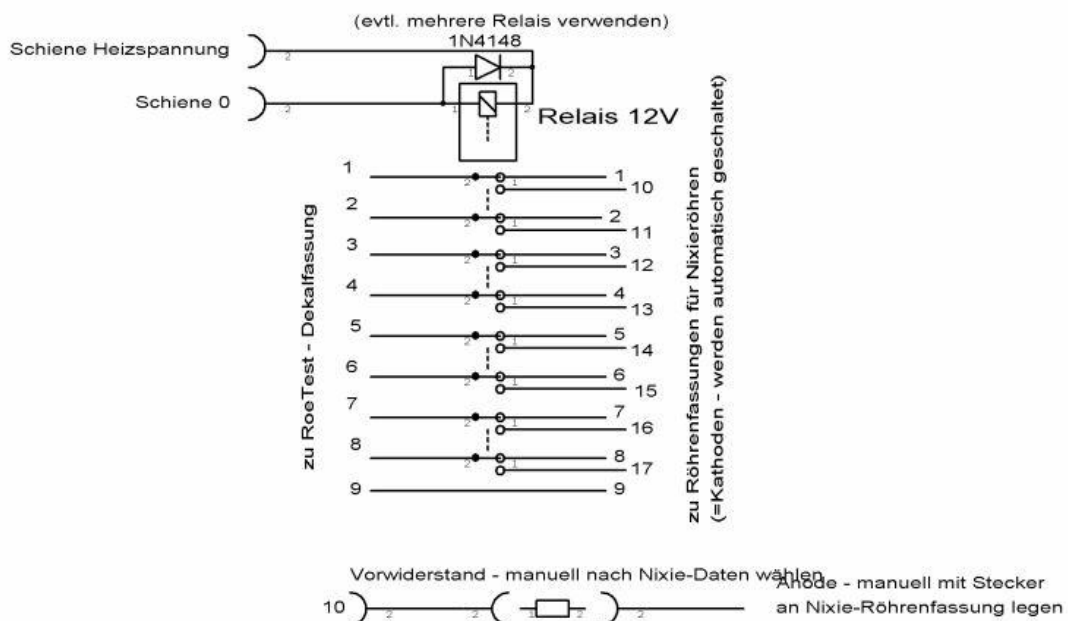
This adapter is connected with a cable to the Dekal socket and to the ground and the heater rails (for the ground and heater rail connections mount a jack connected to the RoeTest main board). As the RoeTest can switch a maximum number of 10 pins and Nixie tubes can have more pins a small circuit extension is required inside the socket box. A relay switches pins 1-8, pin 9 is connected through. So up to 17 pins are usable for the cathodes and can be switched automatically. Pin 10 is always connected to the anode voltage (the G2 voltage source with maximal 60mA is used). This pin must be attached manually to the specific tube pin with a pluggable series resistor (see the data sheet for the specific Nixie tube).

I simply used a socket terminal as a patch panel (**Caution: do not touch the resistor when voltages are applied**). The relay's supply source is the heater voltage (use a 12 V relay with 8 SPDT switches; eventually use several relays, e.g. 4 relays with 2 SPDT switches each).

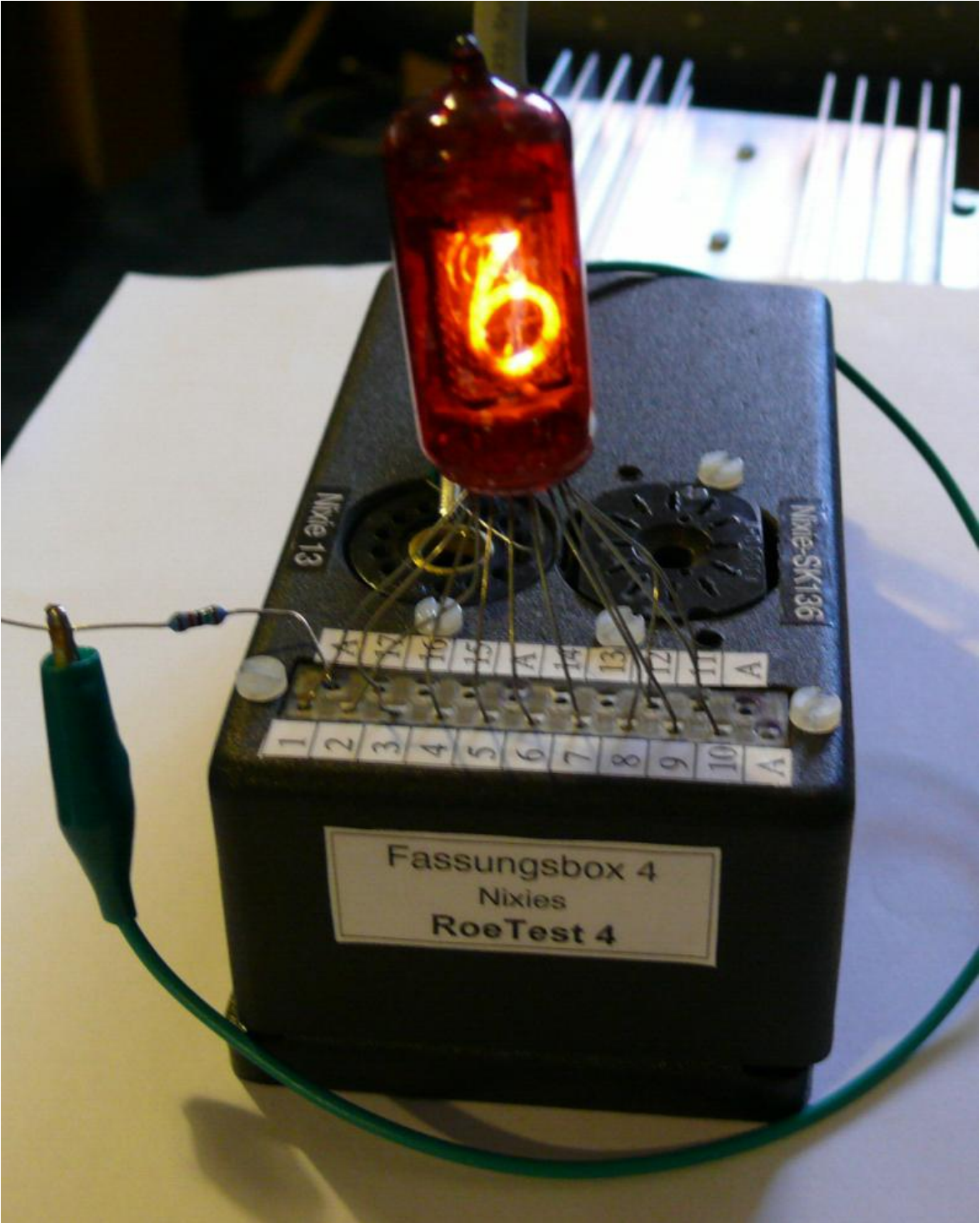
RoeTest - Adapter für Nixieröhren

(c) - Helmut Weigl

über steckbares Verbindungskabel zum RoeTest



Socket box circuit diagram for conventional Nixie tubes (1 Anode)



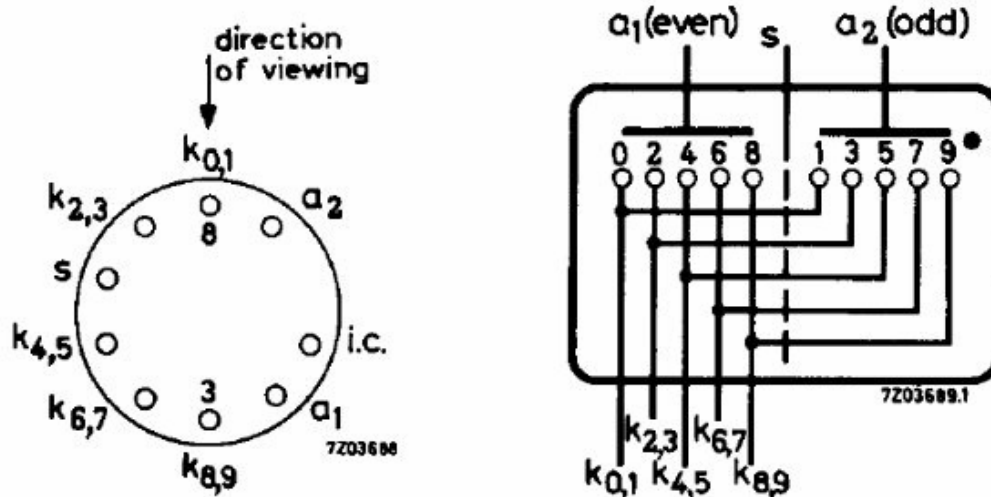
As you can see the socket terminal is not only suitable for inserting a series resistor into the anode connection but also for connecting Nixie tubes that come with wires.



2. Biquinary Nixie Tubes (Two Anodes)

This type of Nixie tubes has two anodes. The cathode pins are double assigned (example: ZM1030). This connection pattern reduces the required overall pin count so a standard Noval socket with 9 pins can be used. The pins of these tubes are all wired using the same scheme so only one additional socket box suffices for all biquinary Nixie tubes.

Base: Noval

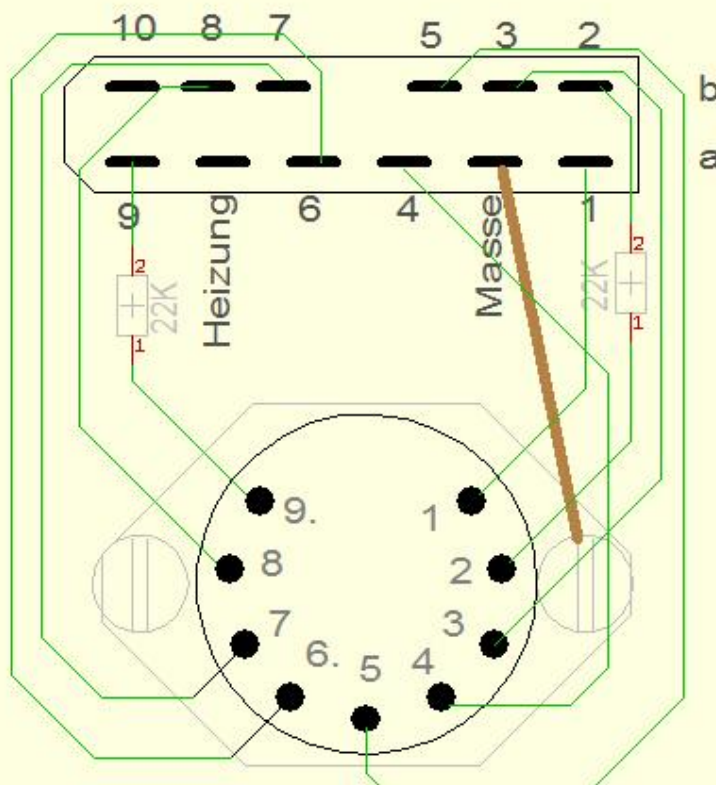


A standard Noval socket is required. Both pin 2 and pin 9 are connected with a 22 kOhms series resistor to the socket box connector. All other pins are directly connected.

Schaltplan Fassungsbox - biquinär Nixie

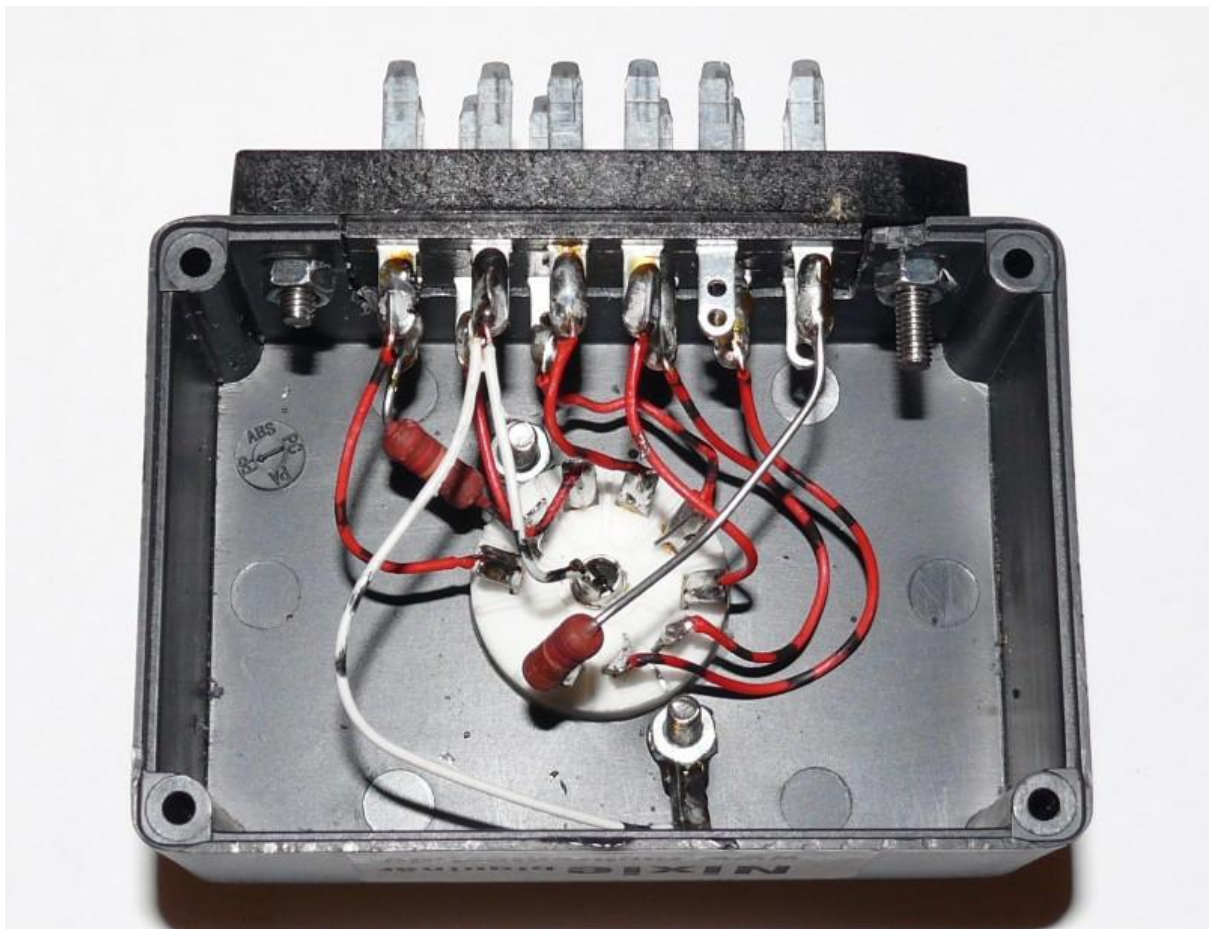
Beispiel Noval-Fassung

(von vorne auf Fassungsboxhalter gesehen) Reichelt ML A12 (DIN41622)



Masse an Metallteile

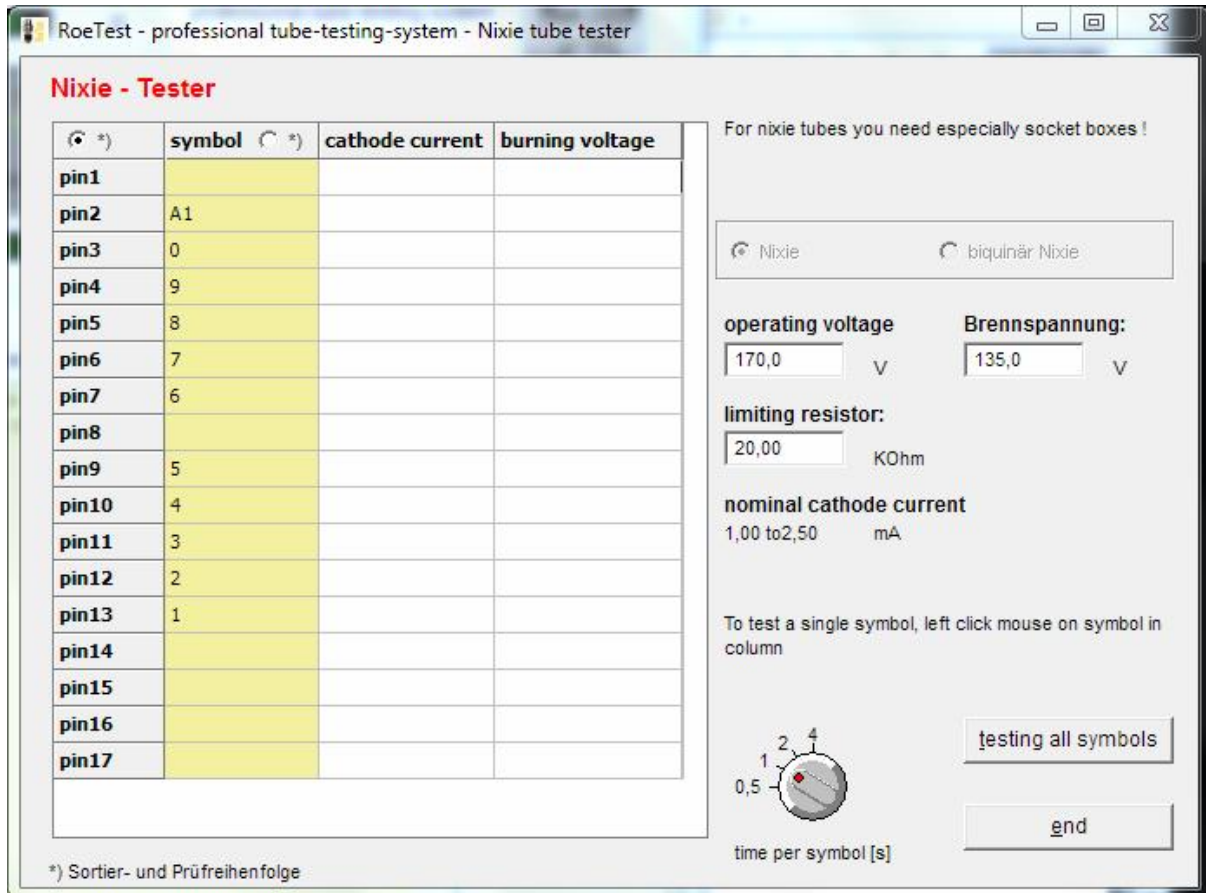
Socket box circuit diagram for biquinary Nixie tubes (2 Anodes)



Software:

In menu "B" there is a button for Nixie tubes. Clicking a symbol on the symbol column switches on this symbol and the burning current and voltage are measured. The symbols can also be automatically switched on one after the other (button <alle Symbole testen>).

The testing time for a symbol can be selected with a rotary switch from 0,5 to 4s. With the two radio buttons at top of the table the sorting/testing order can be chosen, either by pin number or by symbol.



Menu for conventional Nixie tubes (1 Anode)

RoeTest - professional tube-testing-system - Nixie tube tester

Nixie - Tester

For nixie tubes you need especially socket boxes !

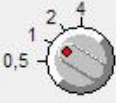
Nixie
 biquinär Nixie

operating voltage V
 Brennspannung: V

limiting resistor: KOhm

nominal cathode current
 3,80 to 0,00 mA

To test a single symbol, left click mouse on symbol in column



time per symbol [s]

pin	symbol
pin1	
pin2	A1
pin3	8 9
pin4	6 7
pin5	4 5
pin6	
pin7	2 3
pin8	0 1
pin9	A2
pin10	
pin11	
pin12	
pin13	
pin14	
pin15	
pin16	
pin17	

*) Sortier- und Prüfreihefolge

Menu for biquinary Nixie tubes (2 Anodes)

Database software:

Selecting the „Nixie“ tube type automatically changes the input mask:

Conventional Nixie tubes (1 Anode):

RoeTest DatenbankRoeTest - database

RoeTest.dbf

RoeTest DatenbankRoeTest - database

tube's designation: K

manufacturer: ---

see similar type:

Philips code:

heater:

heater voltage [V]: control:

Heater current [A]:

heater type:

Heater cold resistance (ohms):

General data

Market introduction year:

checked:

Origin of data:

Data filed by:

Data changed or new: (check if data changes should be used and transferred for updating purposes)

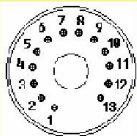
Data changed by:

remarks about changes:


System 1 System 2 System 3

type of tube system: Nixie - -

base/socket:



NIXIE 13



pin 1:

pin 2:

pin 3:

pin 4:

pin 5:

pin 6:

pin 7:

pin 8:

pin 9:

pin 10:

length of bulb [mm]:

diameter of bulb [mm]:

weight [g]:

pin 11:

pin 12:

pin 13:

pin 14:

pin 15:

pin 16:

pin 17:

A1,A2 = Plates, anodes
Insert symbols of Nixie tube (=cathodes)

remarks about tube: [help on tube types:](#)

Betriebsspannung 170V, Vorwiderstand vor Anode 20K, Zündspannung 145, Brennspeisung 135, Löschespannung 120, Strom 1-2,5 mA

Navigation dataset:

RoeTest DatenbankRoeTest - database

RoeTest.dbf

RoeTest DatenbankRoeTest - database

tube's designation: K

manufacturer: ---

see similar type:

Philips code:

heater:

heater voltage [V]: control:

Heater current [A]:

heater type:

Heater cold resistance (ohms):

General data

Market introduction year:

checked:

Origin of data:

Data filed by:

Data changed or new: (check if data changes should be used and transferred for updating purposes)

Data changed by:

remarks about changes:

System 1 System 2 System 3

type of tube system: Nixie - -

typical ratings:

S2 +1:

S3 -1:

S4 +2 operating voltage [V]:

S5 -2:

min. IK [mA]:

max. IK [mA]:

Uignition[V]:

Uburning[V]:

extinguish at voltage:

limiting resistor [kOhm]:

*) See database: Type of tube, Pentagrids etc may also have different connection of grid voltages to the "higher" grids

remarks about tube: [help on tube types:](#)

Betriebsspannung 170V, Vorwiderstand vor Anode 20K, Zündspannung 145, Brennspeisung 135, Löschespannung 120, Strom 1-2,5 mA

Navigation dataset:

For biquinary Nixie tubes (2 Anodes) choose tube type „Nixie bi“. The symbols associated with each anode must be registered as system1 and system2 respectively:

RoeTest DatenbankRoeTest - database

tube's designation: **ZM1030** K

manufacturer: ---

see similar type: _____

Philips code: _____

heater: _____ control:

heater voltage [V]: 0,00

Heater current [A]: 0,000

heater type: keine

Heater cold resistance (ohms): 0,00

General data:

Market introduction year: _____

checked:

Origin of data: _____

Data filed by: Helmut Weigl

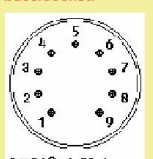
Data changed or new: (check if data changes should be used and transferred for updating purposes)

Data changed by: Helmut Weigl

remarks about changes: _____

type of tube system: Nixie bi Nixie bi _____

base/socket:



pin 1: _____

pin 2: A1

pin 3: 8

pin 4: 6

pin 5: 4

pin 6: _____

pin 7: 2

pin 8: 0

pin 9: _____

pin 10: _____

length of bulb [mm]: 49

diameter of bulb [mm]: 22

weight [g]: 0

base: Noval B9A

	System 1	System 2	System 3
pin 1			
pin 2	A1		
pin 3	8	9	
pin 4	6	7	
pin 5	4	5	
pin 6			
pin 7	2	3	
pin 8	0	1	
pin 9		A2	
pin 10			

remarks about tube: help on tube types: _____

= NL1032, NL1032N, NL5030, Z523M, Z8700M, Z870M, ZM1030, ZM1032N
spezielle Fassungsbox für biquinäre Nixie erforderlich
Pin 8 vorne

Navigation dataset: _____

new duplicate print datasheet abort store

RoeTest DatenbankRoeTest - database

tube's designation: **ZM1030** K

manufacturer: ---

see similar type: _____

Philips code: _____

heater: _____ control:

heater voltage [V]: 0,00

Heater current [A]: 0,000

heater type: keine

Heater cold resistance (ohms): 0,00

General data:

Market introduction year: _____

checked:

Origin of data: _____

Data filed by: Helmut Weigl

Data changed or new: (check if data changes should be used and transferred for updating purposes)

Data changed by: Helmut Weigl

remarks about changes: _____

type of tube system: Nixie bi Nixie bi _____

typical ratings:

	System 1	System 2	System 3
S2 +1	0,0	0,0	0,0
S3 -1	0,00	0,00	0,00
S4 +2 operating voltage [V]	170,0	170,0	0,0
S5 -2	0,0	0,0	0,0
min. IK [mA]	3,80	3,80	0,00
max. IK [mA]	0,00	0,00	0,00
Uignition[V]	0,00	0,00	0,00
Uburning[V]	139,0	139,0	0,0
extinguish at voltage	0,0	0,0	0,0
limiting resistor [kOhm]	22,0	22,0	0,0

*) See database: Type of tube. Pentagrids etc may also have different connection of grid voltages to the "higher" grids

remarks about tube: help on tube types: _____

= NL1032, NL1032N, NL5030, Z523M, Z8700M, Z870M, ZM1030, ZM1032N
spezielle Fassungsbox für biquinäre Nixie erforderlich
Pin 8 vorne

Navigation dataset: _____

new duplicate print datasheet abort store