A vertical rectangular advertisement with a textured, metallic background. The text is centered and uses various font styles and weights. At the top, 'OSRAM' is written in a large, bold, outlined font. Below it, 'URDOX' is in a smaller, bold, solid font. Underneath 'URDOX' is the word 'und' in a small, plain font. Below 'und' is 'Eisen-Widerstände' in a bold, solid font, followed by 'für Rundfunkgeräte' in a bold, solid font. At the bottom, 'OSRAM' is written in a large, bold, solid font, and below it, 'G.M.B.H. KOMMANDITGESELLSCHAFT' is written in a smaller, bold, solid font.

**OSRAM**  
**URDOX**  
und  
**Eisen-Widerstände**  
**für Rundfunkgeräte**

**OSRAM**  
G.M.B.H. KOMMANDITGESELLSCHAFT

# **Osram - Urdox**

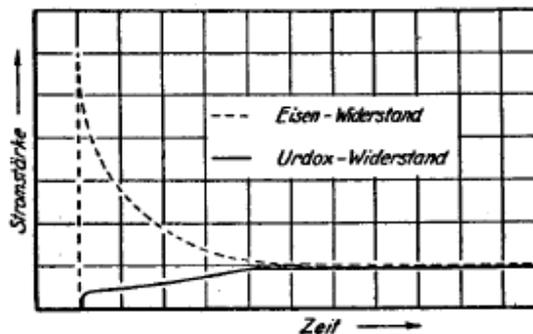
( DRP.631867 and 639660 )

## **Resistors for radios**

### **Application:**

Detailed studies of Urdox resistor bodies in our laboratory have shown that they are suitable particularly to suppress over currents that occur shortly after turning others if the payloads are metallic resistors with high working temperature. This inrush surge currents are particularly very harmful if payloads are of different heating time in serial connection, as is the case, for example, the cathode, dial light and iron-resistors in amplifier devices the case.

The resistors protect the switching of the heating units with different heating times, In particular, the one with the shortest heating time, which are otherwise at risk. The different heating-up of these switching units are due to their different resistance ratio in the cold and hot operating condition and the very different heat capacity. The thermally inert cathode to reach its final temperature, for example, only some time after switching on and only then take the device to a significant portion of the operating voltage. The resistance ratio of the cathode by about 1:13, cold to operating temperature, thus conditions on power over currents that specified, as in the figure below, are a multiple of the rated current: drop this over currents your authorized maximum value with time only slowly to the operating current . This tent space can take up to half a minute.



### **Effect:**

The effect of the Urdox-resistance can be very well in a series circuit with an iron-resistance show the temporal current profile when switching from the previous figure can be seen. The

Inrush current is here, as is evident from the dashed curve is a multiple of operating current. If the iron resistance preceded by a Urdox-balancing resistance is obtained for this period of time a current profile, as represented by the solid curve. The overflow will occur otherwise immobile and turned back through the Urdox-balancing resistance to negligible values, or even completely suppressed, as shown in the illustration on page 2. This is due to the high Resistance value that has the Urdox-compensating resistor in the cold state and the drops after heating to a small value.

### **Design and control range:**

Urdox-compensating resistors are either used by itself in a tubular piston or in conjunction with an iron-resistance, wherein they are then placed within the piston with the iron wire in series. By placing the body Urdox the range of the iron-resistance is slightly reduced. The current value of the iron with built-in resistors Urdox body deviates throughout the control range by only about  $\pm 5\%$  of nominal value. Such resistance for example, with a range of 110 .. 220 V and a rated current of 180 mA at 110 volts thus has a minimum in the case of 171 mA at 220 volts and 189 mA in the maximum case. These limits are within allowable limits for the power amplifier tubes of about  $\pm 6\%$ . The resistors are chosen as possible so that its voltage stress is continuous load in the middle of the control range. After 1000 operating hours must be calculated with a current change of about  $\pm 1\%$  of the initial continuous current flowing.

The Osram-iron with built-in Urdox body resistors (EU resistors) and resistors were Urdox with complete success for DC devices (0.18 amps) and equipment for the universal current (0.2 amps) and be introduced by all of Germany's leading manufacturers and a large part of the foreign manufacturer used in amplifier devices.

### **Speakers with permanent magnet:**

The EU and EW-resistance device for universal current (0.2 amps) are equipped with spring-applied protective coats made of sheet iron, especially if stray magnetic fields acting on the iron wire. In alternating-current stress that is the iron wire leads from vibrations that can be damaging prematurely. When using the iron covers is usually protected by resistance in the magnetic shadow. Stray magnetic fields are to be expected especially when dynamic speakers can be used with permanent magnet, or, if the resistance of iron is in the vicinity of inductors and transformers with stray fields.

## Standard Types

### **Osram-iron with built-in Urdox body resistors for universal current device 0.2 Amp., AC and DC**

(DRP. 631867 und 639660)



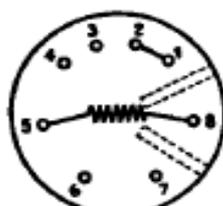
Order number	Maximum		Control range Volt	ampere Amp.	Dimensions		Price RM
	Main voltage Volt	Continuous load Volt*			Diam. mm	Total length mm	
EU VI	260	182	110...220	0,2	40	125	4,—
EU IX	240	155	95...190				
EU XII		140	85...170				
EU XX	160	58	35... 70				

Base Type: 8-pole profile

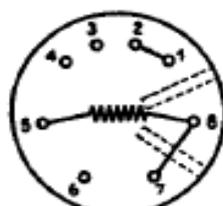
\* Above the mentioned voltages are the resistors are only charged temporarily.

It is intended to continue without the resistors to deliver peak

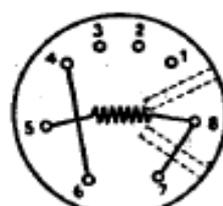
### **Casing base: Socket seen from below**



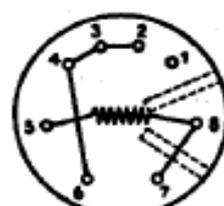
EU VI



EU IX



EU XII



EU XX

### **Instructions for universal current types**

These resistors are provided with spring-applied protective coats made of sheet iron, if instead of the energized by direct current dynamic speakers used are those with permanent magnets. The permanent magnets have a very strong stray field at the AC load resistance of iron for this requires a magnetic protection.

### **Osram Urdox compensation resistors for radio receivers for universal current, DC and AC**

(DRP. 631867 und 639660)



Order number	Maximum Main Volt	ampere Amp.	volt-age Volt about	Dimensions		Socket	Price RM
				Diam. mm	length mm		
U 920	220	0,2	9	30	83	8 pol. Profil	2,20
U 2020			20				2,10
U 1230		0,2...0,3	12	27	72	B 22 s	1,30

Socket connection: U 920 and U 2020 on the poles 5 and 8

**When ordering, specify the order number.**

## For replacement purposes

### Osram-iron with built-in Urdox body resistors for radio - receivers with indirectly heated tubes, DC (DRP. 631867 und 639660)

Order number	Maximum		Control range Volt	ampere- age Amp.	Dimensions		Price RM
	Main voltage Volt	Continuous load Volt *			Diam. mm	Total length mm	
EU I	240	182	110...220	0,18	40	148	3,90
EU II	150	90	55...110		35	130	3,10
EU III	110	41	25... 50		32	113	2,90
EU IV	180	132	80...160		40	148	3,90
EU V	125	58	35... 70		35	130	3,10

**Socket Type: three-pin 58354 a.**

\* Above the mentioned voltages are the resistors are only charged temporarily.



### Osram-iron with built-in Urdox body resistors for universal current device 0.2 Amp., AC and DC

(DRP. 631867 und 639660)

(see instructions for universal current types on page 4)

Order number	Maximum		Control range Volt	ampere- age Amp.	Dimensions		Price RM
	Main voltage Volt	Continuous load Volt *			Diam. mm	Total length mm	
EU VII	150	83	50...100	0,2		103	4,—
EU VIII	180	125	75...150		30	113	
EU X	125	58	35... 70			90	
EU XIII	130	41	25... 50		40	140	

Sockelart: 8 poliger Profil.

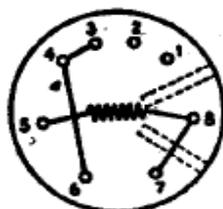
\* Above the mentioned voltages are the resistors are only charged temporarily.

It is intended to continue without the resistors to deliver peak

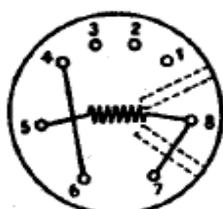


When ordering, specify the order number.

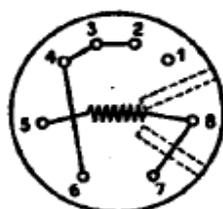
**Casing base: Socket seen from below**



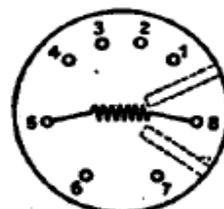
EU VII



EU VIII



EU X



EU XIII

## ***For replacement purposes***

### ***Osram Urdox compensation resistors for radio receivers with indirectly heated tubes, DC***

*(DRP. 631867 und 639660)*

	Order number	To be used for mains voltage Volt	ampere- rage Amp.	volt- age Volt about	Dimensions		Price RM
					Diam. mm	length mm	
	U 918	110		9			1,25
	U 1218	110...220	0,18	12	27	76	
	U 1518						15

*Socket Type: Edison E 10*

*When ordering, specify the order number.*

### ***Osram Urdox compensation resistors for radio receivers for universal current, DC and AC***

*(DRP. 631867 und 639660)*

	Order number	To be used for mains voltage Volt	ampere- rage Amp.	volt- age Volt about	Dimensions		Price RM
					Diam. mm	length mm	
	U 1220/5						2,—
	U 1220/6	110...220	0,2	12	30	83	2,50
	U 3620			36			2,10
	U 4520	125...220		45		95	2,50

*Socket Type: 8-pin profile.*

*When ordering, specify the order number.*

## Osram iron resistors for universal current- device-0.2 Amp, AC and DC

*(See instructions for universal current types on page 4)*

***In the cases where the incorporation of iron resistors with Urdox bodies in the common piston is provided, separate iron resistors and Osram Urdox resistors in series with the tubes can be used. The upper limit of the control range of these resistors is equal to three times that of the lower limit value. In selecting the iron resistances, make sure that the voltage is approximately constant load in the middle of the control range.***

Order number	Maximum		Control range Volt	ampere- range Amp.	Dimensions		Price RM
	Main voltage Volt	Continuous load Volt*			Diam. mm	Total length mm	
EW 1	240	200	80...240	0,2	40	125	3,—
EW 2	125	85	35...105		35	104	
EW12	125	85	35...105		40	140	3,60
	240	200	80...240				



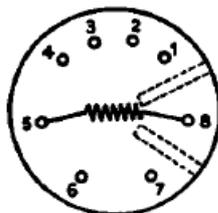
**Socket: 8-pin profile.**

**\* Above the mentioned voltages are the resistors are only charged temporarily.**

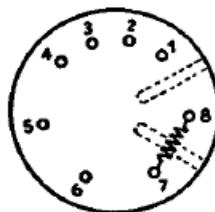
***When installing all the resistors, ensure that the resistors that are in vertical operating position are with the socket down.***

*When ordering, specify the order number.*

### **Casing Base: Socket seen from below**



EW 1 u. EW 2



EW 12

**Control range 35...105 volts    Control range 80...240 Volts**

## ***New Urdox resistors***

***for AC units***

***to protect the electrolytic capacitors***

***For smoothing the direct current supplied from the rectifier, to be used mainly on electrolytic capacitors. Under certain conditions, it is necessary to protect the electrolytic capacitors from the high peak voltage values, which become effective during the starting time of the tubes after switching on.***



Order number	Voltage Volt	ampere- rage Amp.	Dimensions		Socket	Price RM
			Diam. mm	length mm		
U 3007	30±4	0,07	13	54	Hexodes Caps	1,15

Further documents available on request.

## **Iron Resistors**

**For battery receiver**

**The resistors, which have a very small control range, keep the heating current automatically constant, regardless of whether is heated with dry batteries or with 4 or 6 volt batteries. Is well known that the dry batteries during the burning time a change of the terminal voltage of about 1.5 volts. But even with battery devices, which are heated by batteries, the batteries appear to change a terminal voltage, which overload the amplifier tubes and thus result in premature failure of equipment.**



Order number	Voltage Volt	ampere- rage Amp.	Dimensions		Socket	Price RM
			Diam. mm	length mm		
B 128	0,5...1,5	0,28	11	50	S 8	1,40
B 150		0,47				

**The current figures have plus / minus tolerances of 4% of the nominal current at the center of the control range. In the present state of the art is usually temporary as the smallest range 0.5 ... 1.5 V and a minimum adjustable current of 0.1 amps.**

Resistors with different electrical properties on request.

*When ordering, specify the order number.*

## **Surcharges**

**Special stamp in all common ..... RM 0,03 netto.**  
**Special socket circuit ..... RM 0,10 netto.**

**Changes to the structure and dimensions without notice.**

**Sale and delivery to take place due to the current jewells Osram Delivery.**

## Osram-iron with a built-in Urdox body resistor and Osram - Urdox resistors

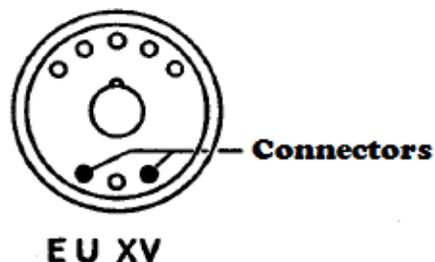
**For the new units with 'U tubes' - series (steel tubes)**

**(According to the standards proposed by the WDRI )**

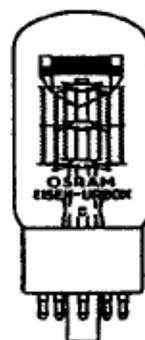
Order number	Maximum power voltage	Voltage	ampereage	Dimensions		Socket	Price RM
	Volt			Volt	Amp.		
EU XV	240	40—80		40	100	Steel tubes	<b>4.40</b>
U 1010/P	240*)	10	0,1	30	88	B 22 s	<b>2.35</b>
U 2410/P	240	24					

**\*) But only for 3-tube devices is possible, provided a fixed resistor of at least 100 volts.**

**Socket connection: socket seen from below**



U 1010/P  
U 2410/P



EU XV

### Osram Urdox resistor

for VE 301 Dyn GW

Order number	Vol-tage	ampe- rage	Dimensions		Socket	Price RM
	Volt		Amp.	Diam. mm		
U 3505-VE	35	0,05	30	87	B 22s/24	<b>1.85</b>



U 3505-VE

*When ordering, specify the order number.*

**Changes to the structure and dimensions without notice.**

**Sale and delivery to take place due to the current jewells Osram Delivery.**