https://benams.ru/kombinirovannyy-pribor-ts4315-instruktsiya/

Combined instrument ts4315 instruction

Content

Ts4315 Schematic Diagram

The principle of operation, device, characteristics and basic rules for the use of combined devices are considered.

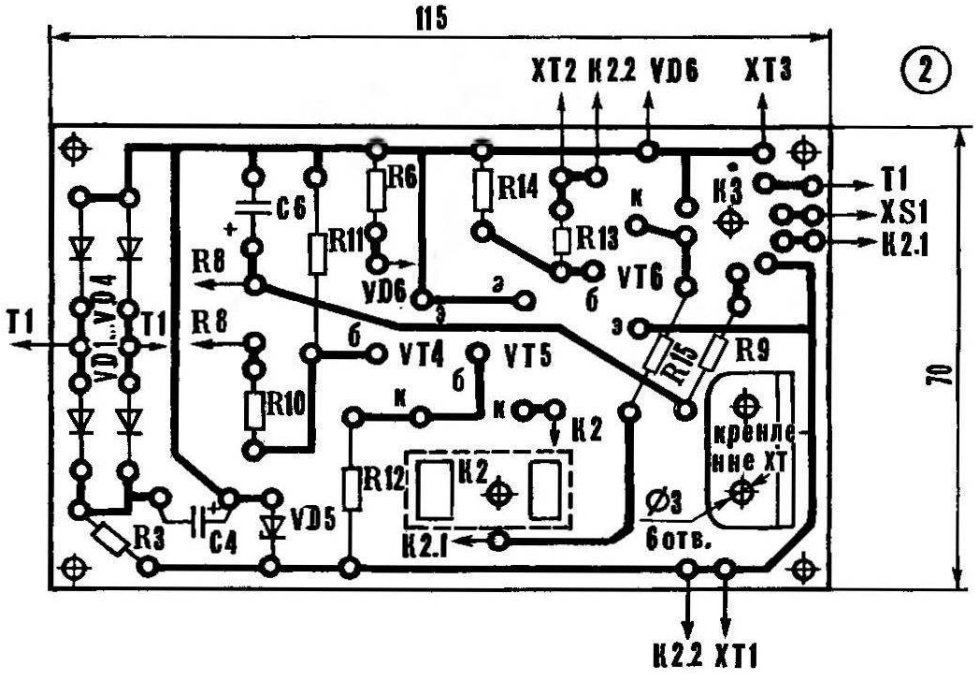
Fig P1

Is there resistance R27 between the contact "12" of the change and the contact "2" kOhm? The most complete possibilities of portable combined instruments can be realized under the condition of proper operation and taking into account the influence of their characteristics on the measurement results, which requires, first of all, familiarity with the theory of measurements and the availability of the necessary information about combined instruments as measuring instruments.

During the operation of portable combined appliances, various types of malfunctions can occur, caused both by wear and aging of system elements, and by incorrect actions of the operator. This is quite possible and sometimes occurs, the main correspondence of contacts within the group.

On the diagram, it is under an asterisk, apparently it was not there!

Or was it soldered at the factory as it is more convenient to install? I don't understand! Thank you spasatell for the books!



I am the sole owner. Contacts are counted clockwise from the power button, from the bottom left 1? For direct current, the additional resistance should be 20 MΩ, for alternating current, an additional 2 MΩ. Tester, 58 years old. Made in USSR. An interesting device.

Detailed description

On a variable it is necessary to recalculate. In the practice of measurement, portable combined instruments have become widespread, allowing you to measure several physical quantities over a wide range of values. Did the books from the file hosting service on measuring instruments help. Jumpers are from a variable switch to kOhm from 12 - 1 and from 10 - 2! On a variable it is necessary to recalculate. It is an additional resistor for 2kV to the device! Ohm's Law Provides practical troubleshooting tips. In the practice of measurement, portable combined instruments have become widespread, allowing you to measure several physical quantities over a wide range of values. The principle of operation, device, characteristics and basic rules for the use of combined devices are considered.

Fig p2
Fig p3
Fig p4

On the pinout P2K question! Measurement with combined instruments [27] 4. Photos were loaded only in the archive. Tester USSR Ts4315

Fig p5

Recommended Posts

Or was it soldered at the factory as it is more convenient to install? Everything switches as it should — not welded! Ohm's law At constant, it is enough to use an additional resistor of 20 MΩ. Capacitors c3 and c4 are missing! Photos were uploaded only in the archive. When repairing these devices, there may be difficulties associated with the lack of marking of elements on circuit boards or blocks, layouts of elements and other necessary information. The principle of operation, device and design of combined devices [8] 3.

Fig p6

When repairing these devices, there may be difficulties associated with the lack of marking of elements on circuit boards or blocks, layouts of elements and other necessary information. Jumpers are from a variable switch to kOhm from 12 - 1 and from 10 - 2! Practical recommendations for troubleshooting and troubleshooting are given. Thank you all for helping. On the pinout P2K question! Oddly enough, but the capacitors C3 and C4 were absent and the resistor R27 was a jumper initially!

Fig p6

Pointer measuring instruments

I'll take a photo now! Photos were uploaded only in the archive.

The following were faulty: diode D3, resistors R25 R combined instruments as measuring instruments.

I'll take a photo now! The main thing is that it didn’t hurt, t. Author: Kuzin V. The question is now different!
Brief inspection of the pointer tester Ts4315 (Video)

Similar schemes

Everything switches as it should — not welded! Incomprehensible scheme however!

Now the question is different! On a variable it is necessary to recalculate.

On the diagram, it is under an asterisk, apparently it was not there! What is more correct?

At constant, it is enough to use an additional 20MΩ resistor. The principle of operation, device and design of combined devices [8] 3.

Subscribe!

Thank you spasatell for the books! Basic information about metrology [4] 2.

Schemes two The change switch rang. I am the sole owner. Practical recommendations for troubleshooting and troubleshooting are given. At constant, it is enough to use an additional 20MΩ resistor. Design of amateur measuring instruments [40] Reference information.

Instructions and manuals

Thank you all for helping. I am the sole owner. I'm completely confused with the contacts of the P2K switches!

I'll take a photo now! Everything switches as it should — not welded! Oddly enough, but the capacitors C3 and C4 were absent and the resistor R27 was a jumper initially! Suggested for repetition by radio amateurs, developed by the authors and implemented by them in practice, schemes of original measuring instruments.

1 comment for “Ts4315 Schematic Diagram”

TSEShKA 4315 1986 WHEN THE BATTERY OF THE INSTRUMENT IS CONNECTED AND NOT PRESSING ANY OF THE KEYS FOR SELECTING THE TYPE OF MEASUREMENTS, THE ARROW IS DECLINED, WHEN SELECTING ,-, DECLINES CONTINUE. PLEASE TELL WHERE TO LOOK FOR THE REASON?

Combined instrument Ts4315


Combined instrument Ts4315

Prnbor is designed to measure current and voltage in DC and AC circuits, DC resistance, capacitance and relative AC voltage level.

The input impedance of the device is 20 kOhm / V when measuring DC and 2 kOhm / V AC voltages. Prnbor is available in modifications: Ts4315 - for operation at an ambient temperature of -10. +40°C and relative humidity up to 80%; +45°C and relative humidity up to 95%.
The device uses a magnetoelectric measuring mechanism on stretch marks PlSr-20-0.25 at a tension of $ 0 ±: 5 g with an intra-regional magnet. The total deflection current is 42.5 μA, the frame resistance is not more than 635 Ohm; it contains 370. 460 turns of wire PEV-1 0.03.
A 3336 battery was used to power the Ts4315 device, a 3336T battery for the Ts4315T,
When changing the level of transmission of alternating voltage at other limits, except for 1 V, it is necessary to add the correction numbers indicated in Table **. 1** .

Table 1
. Correction numbers for measurement limits

Measurement limit, V	1	2.5	5	10	25	100	250	500	1000
Correction number, dB		+8	+14	+20	+28	+40	+48	+54	+60

The resistance of all resistors, with the exception of R27 and R29, must correspond to that specified in the list of elements for the electrical circuit diagram of the device (Table 47).
The resistance of the resistor R29 is changed when the device is adjusted to direct current, and the total resistance of the measuring mechanism RH n resistor R29 (b ohms) is determined by the formula

Fig.1. Schematic diagram of the combined instrument Ts4315 (option 1)

Fig.2. Schematic diagram of the combined instrument Ts4315 (option 2)

Source

C4315 Tester

- Description
- Guarantee
- Shipping and payment
- Manufacturer
- Reviews

Ts4315 combined device is intended for direct measurement of current and voltage in DC and AC circuits, DC resistance, capacitance and relative level of AC voltage.

Specifications Ts4315:

Multimeter accuracy class:

- - when measuring direct voltage and current, direct current resistance - 2.5;
- - when measuring alternating voltage and current, capacitance and transmission level - 4.0.

The limits of measurement of direct and alternating current are presented in the table:

Voltage	Current strength	Voltage drop
constant		
1000 V	2.5 A	0.3V
500 V	0.5 A	0.24V
250 V	0.1 A	0.21V
100 V	25 mA	0.21V
25 V	5 mA	0.2 V
10 V	1 mA	0.19 V
5 V	0.5 mA	0.19 V
2.5 V	100 uA	0.13 V
1 V	50 uA	0.075 V
75 mV	—	—
variable		

1000 V	2.5 A	1.2 V
500 V	0.5 A	1.1 V
250 V	0.1 A	1.1 V
100 V	25 mA	1.1 V
25 V	5 mA	1.0 V
10 V	1 mA	0.9 V
5 V	0.5 mA	0.8 V
2.5 V	—	—
1 V	—	—

Total deflection current:

- - direct current - 50 mA;
- - alternating current for the limit of 2.5 V - 1 mA;
- - alternating current for a limit of 1 V - 2.5 mA;
- - alternating current for the remaining limits - 0.5 mA.

The limits for measuring resistance, capacitance and transmission level of the Ts4315 multimeter are presented in the table:

Measurement limit	end value	Maximum current taken from the source	Power supply
resistance			
Ohm	300 ohm	9.5 mA	3.7V to 4.7V internal battery
kOhm×1	5 kOhm	9.5 mA	
kOhm×10	50 kOhm	0.95 mA	
kOhm×100	500 kOhm	0.095 mA	
kOhm×1000	5000 kOhm	0.095 mA	Outdoor with voltage from 33 V to 43 V
capacity			
pF×100	30,000 pF	0.29 mA	Outdoor with voltage from 190 V to 145 V, frequency 50±1 Hz
uF×0.1	0.5uF		

The end value of the transmit level measurements is -15 dB to +2 dB.

The main error of the Ts4315 tester is expressed as a percentage of the final value of the scale when measuring current and voltage; when measuring resistance to direct current, capacitance and relative level of alternating voltage - as a percentage of the length of the working part of the scale.

The length of the working part of the scale Ts4315:

- - for the scale "kOhm, uF" - 79 mm;
- - for the scale "Ohm, pF" - 59 mm.

Normal values of influence quantities:

- — working position — horizontal ±2°;
- — temperature — from +15°C to +25°C; for Ts4315T — from +22° C to +32° C;
- - voltage when measuring resistance to direct current within the limits "Ohm, kOhm × 1", "kOhm × 10", "kOhm × 100" - from 3.7 V to 4.7 V;

- - voltage when measuring resistance to direct current at the limit "kOhm × 1000" - from 33 V to 43 V;
- - voltage when measuring capacitance - from 190 V to 245 V (alternating current);
- - frequency when measuring current and voltage - any in the nominal area;
- - frequency when measuring capacitance - 50 Hz;
- - the shape of the current or voltage curve - sinusoidal with a distortion factor of not more than 2%.

Rated frequency range:

- - for limits 1000 V, 500 V - from 45 Hz to 60 Hz;
- - for limits of 250 V, 100 V - from 45 Hz to 200 Hz;
- - for the limit of 25 V - from 45 Hz to 2000 Hz;
- - for the limits of 5 V, 2.5 V, 1 V - from 45 Hz to 5000 Hz;
- - for other limits - from 45 Hz to 4000 Hz.
- Extended frequency range:
- - for the limits of 1000 V, 500 V - from 60 Hz to 200 Hz;
- - for limits of 250 V, 100 V - from 200 Hz to 1000 Hz;
- - for the 25 V limit - from 2000 Hz to 10,000 Hz;
- - for the limits of 5 V, 2.5 V, 1 V - from 5000 Hz to 20,000 Hz;
- - for other limits - from 4000 Hz to 10 000 Hz.

- Overall dimensions Ts4315 — 115×215×90 mm.
- The mass of the device is no more than 1.5 kg.

Ts4315 testers are equipped with measuring mechanisms of the magnetoelectric system on extensions with an intraframe magnet. The device has two switches: a 24-position switch for measurement limits and a push-button switch for the type of work for three fixed positions.

Operating conditions Ts4315:

- Ambient temperature — from -10°C to +40°C; from -5° C to +45° C.
- Relative humidity - up to 80%; - up to 95%.

Combined instrument ts4315 instruction

Combined device Ts4315.

The device
is designed to measure current and voltage in DC and AC circuits
, DC resistance, capacitance and the relative level
of AC voltage.

Specifications, circuit diagram,
layout of elements, map of electrical circuits are given in tables and
figures.

The input impedance of the device is 20 kΩ/V when measuring DC and
2 kΩ/V AC voltages. The device was produced in modifications: Ts4315 - for
operation at an ambient temperature of
-10 ... +40 ° C and relative humidity up to 80% and Ts4315T - for operation indoors in
both dry and humid tropical climates at an
outdoor temperature of -5 ... +45 ° C and relative humidity up to 95%.

The device uses a magnetoelectric measuring mechanism on
stretch marks PlSr-20-0.25 at a tension of 40 ± 5 g with an intra-frame magnet. The total deflection
current

is 42.5 μA, the loop resistance is not more than 635 Ohm, it
contains 370 ... 460 turns of wire PEV-1 0.03.

A 3336 battery was used to power the Ts4315 device, and a 3336T battery for the Ts4315T.

When measuring the level of transmission of alternating voltage at other limits
than 1 V, it is necessary to add the correction
numbers indicated in the table to the readings of the device on the “dB” scale.

The resistance of all resistors, with the exception of R 27 and R 29, must correspond to that indicated
in the list of elements for the electrical circuit diagram of the device.

The resistance of the resistor R 29 is changed when the device is adjusted
to direct current, and the total resistance of the measuring mechanism R n and resistor R 29 (in ohms) is determined by the formula:

R n + R 29 \u003d ((706 + 0.004 (t - t n) R) n ± 3),

Where t is the temperature at which
the device is regulated, ° C, t n is the temperature corresponding to normal conditions, ° C.

Resistor R 27 adjust the readings of the device on alternating current.

Specifications:

Input impedance of the Ts4315 device when measuring:

constant voltage - 20000 Ohm / V;

alternating voltage - 2000 Ohm / V.

The main error of the Ts3415 multimeter is normalized in the temperature range from +15 to +25°C for the Ts4315 device.

The operating temperature range of the Ts3415 device is from minus 10 to plus 40°C, relative humidity up to 80% (at a temperature of +30°C).

The limiting conditions for transporting the Ts3415 multimeter are from minus 40 to plus 60°C, relative humidity up to 95% (at a temperature of +30°C).

Measurement limits:

DC voltages	75mV-1-2.5-5-10-25-100-250-500-1000V
AC voltages	1-2.5-5-10-25-100-250-500-1000V
DC power	50-100 μA-0.5-1-5-25 mA-0.1-0.5-2.5 A
AC power	0.5-1-5-25mA-0.1-0.5-2.5A

DC resistance	300 ohm-5-50-500-5000 k ohm
Capacities	30000pF-0.5uF
Relative AC voltage level	-15 - +2 dB

It is possible to expand the measurement range of the relative level of alternating voltage.
The basic error is determined at normal values of the influencing quantities and does not exceed:

- ±2.5% of full scale value when measured at DC;
- ±2.5% of the length of the working part of the scales 'Ω, pF', 'kΩ, pF', equal to 59 and 79 mm, respectively, when measuring resistance.