PMK KSZ10C Series Current Probe Calibrators Instruction Manual

Probing Solutions.
Made in Germany.
KSZ10C Series

Contents

Safety Information

Prevent personal injury, fire and product damage.

To avoid personal injury and to prevent fire or damage to this product or products connected to it, review and comply with the following safety precautions. Be aware that if you use this probe assembly in a manner not specified the protection this product provides may be impaired. Only qualified personnel should use this probe assembly.

Use only grounded instruments.

Connect and disconnect properly.

The KSZ10C Series has an 8 mF condensator battery which is charged to 200 V. The capacitor voltage of +200 V is applied between the red safety bar and ground. Make sure that the unit is turned off while removing or replacing the contact clip. Only use the unit with insulated leads.

Keep away from hazardous live circuits.

Avoid open circuitry. Do not touch connections or components when power is present.
Do not operate with suspected failures.
Indoor use only.
Do not operate the product in an explosive atmosphere.

About the KSZ 10C Series

The KSZ10C and KSZ10C/20A calibration generators are used for RF and DC control of current clamps and current transformers up to 10A or 20A. Furthermore, it can be used for calibration due to the accuracy of its signals. The execution of both calibration processes is possible in one operation. A current clamp can be clamped to the current bracket. Current transformers can be contacted by a current line at the safety sockets. The KSZ10 C or KSZ10C/20 A calibration generators contain a capacitor bank of 8 mF, which is charged to 200 V. The capacitor voltage is applied between the red safety socket + 200 V and ground.

When the device is switched on, 200 V are permanently present at the output socket. The device is not potential-free!
Switch off the device via the mains switch before contacting / decontacting the current bar. Operate the device only with fully insulated cables. Make sure that the respective safety regulations are observed.

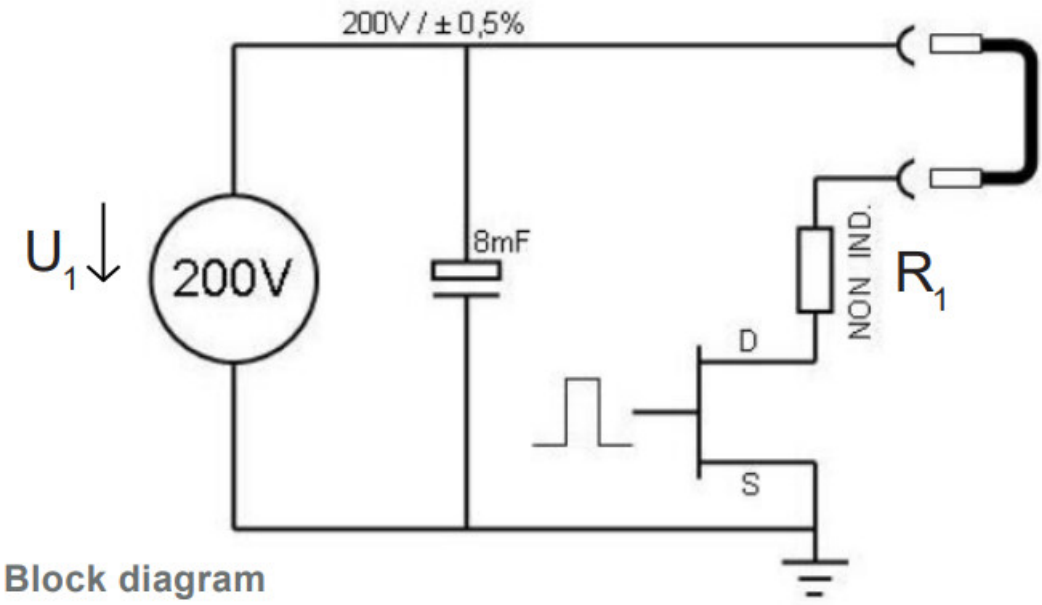
Calibration

Before delivery, the KSZ10C series calibration generators are compared in terms of pulse and rise behavior with calibrated instruments whose calibration is traceable to DKD standards. Each calibration generator is delivered factory calibrated.
An annual calibration of the KSZ10C or KSZ10C/20A is recommended.

Functional Description

The function of the device can be seen from the principle block diagram. A pulse current is generated from the capacitor bank via an accurate, low-inductance resistor through a fast switching transistor. The value of the pulse

current results from the values U1 and the resistance coefficient R1. U1 is stabilized.



Block diagram

Specifications

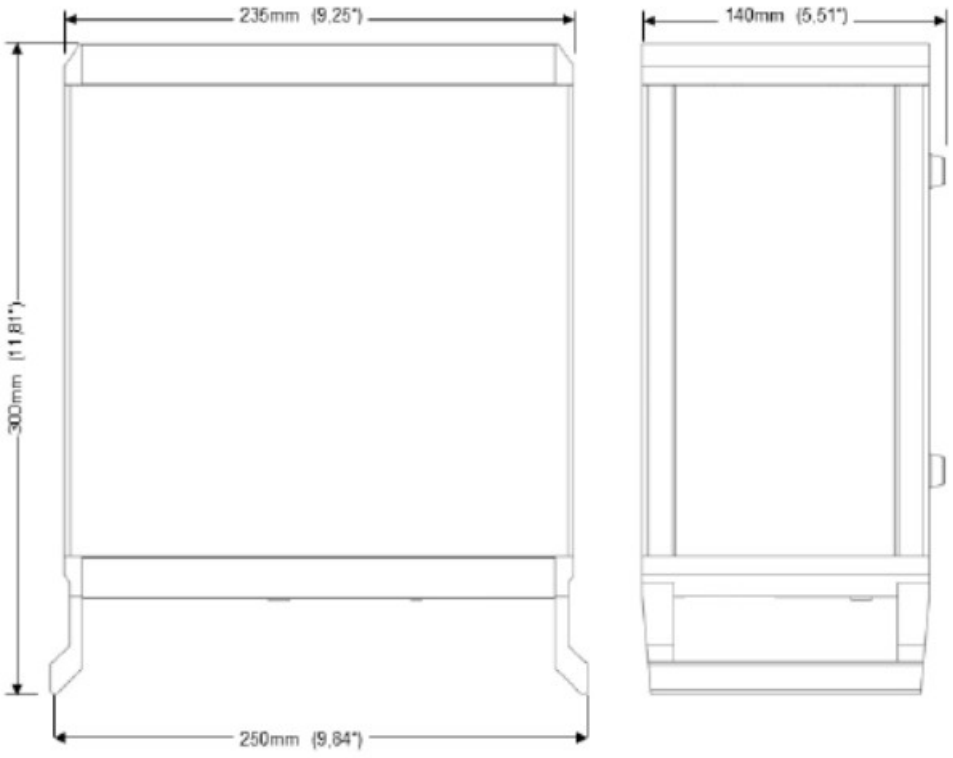
	KSZ10C	KSZ10C/20A
Bestellnummer (EU)	894-001-02A	894-001-C2A
Electrical Specifications		
Current pulse (square wave)	0.1 A / 0.2 A / 0.5 A / 1 A / 2 A / 5 A / 10 A	0.1 A / 0.2 A / 0.5 A / 1 A / 2 A / 5 A / 10 A / 20 A
Accuracy	±2 %	
Pulse width	1 ms	
Frequency	0.5 Hz	
Rise time	12 ns – 30 ns (current dependent)	12 ns – 48 ns (current dependent)
Overshoot	< 2 %	
Trigger output (low active)	15 Vpeak	
Trigger pulse width	2 µs	
Mains voltage	90 V – 250 V AC, 50 Hz – 60 Hz	

Mechanical Specifications	
Weight	3700 g
Dimensions (W x H x D)	250 mm x 140 mm x 300 mm

Environmental Specifications		
Altitude	operating	up to 2000 m
	non-operating	up to 15000 m
Temperature Range	operating	0 °C to +50 °C
	non-operating	-40 °C to +71 °C
Maximum Relative Humidity	operating	80 % relative humidity for temperatures up to +31 °C, decreasing linearly to 40 % at +50 °C
	non-operating	95 % relative humidity for temperatures up to +40 °C

This product comes with 2 years warranty.
Specifications that are not marked as guaranteed are typical.

Dimensions (H x W x D)



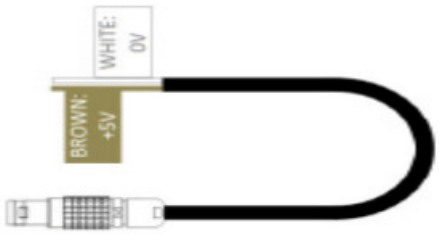
250 mm x 140 mm x 300 mm

Scope of Delivery

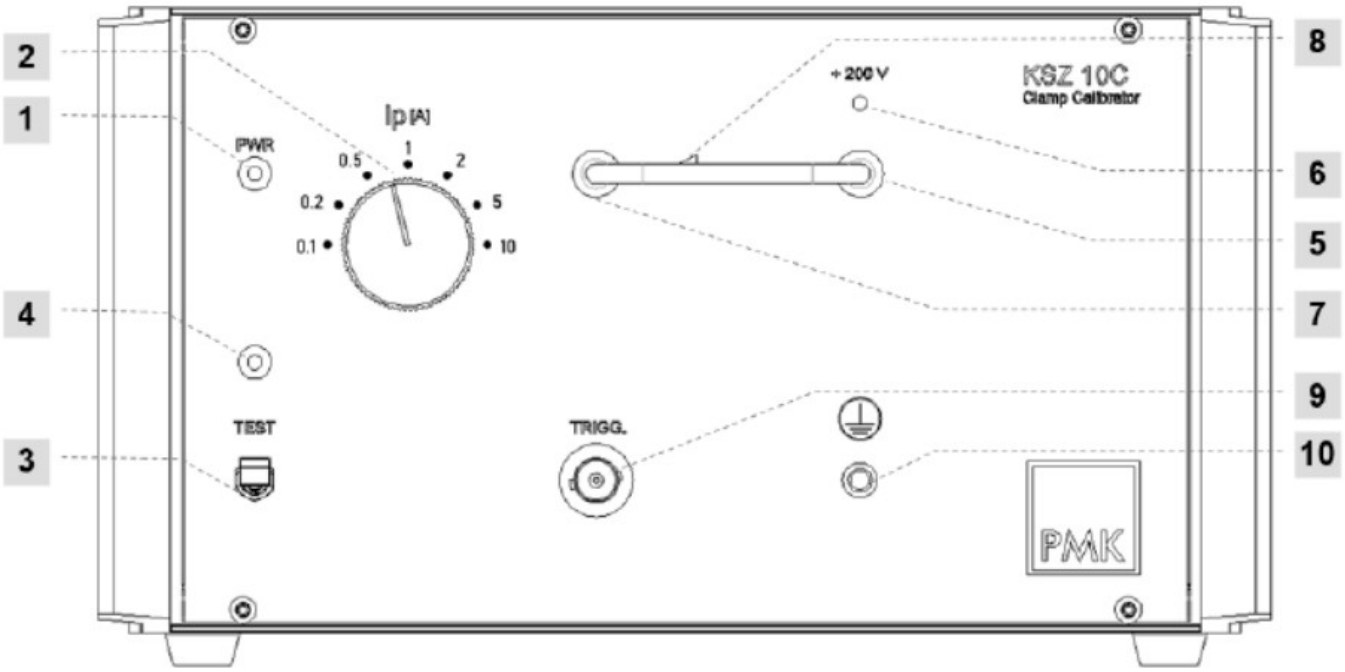
The following items are included.

Item	Qty
Calibrator KSZ10C or KSZ10C/20A	1
Calibration certificate	1
Power cord	1
Instruction Manual	1

Option for KSZ10C Series

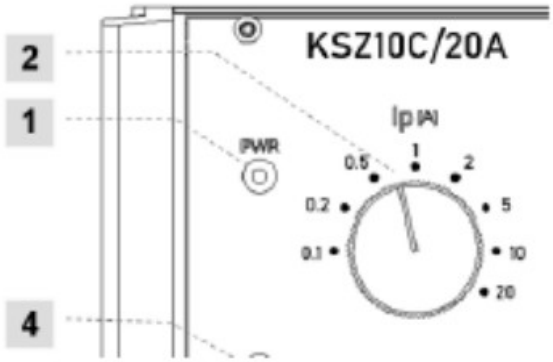
Options	Order No.
Interlock	INTERL-KSZ
Control cable (2 m) for connection to a clo- sing contact (protective cover). Connection to the device via LEMO-Pu sh-Pull connector on the back of the device.	

Operating elements housing front

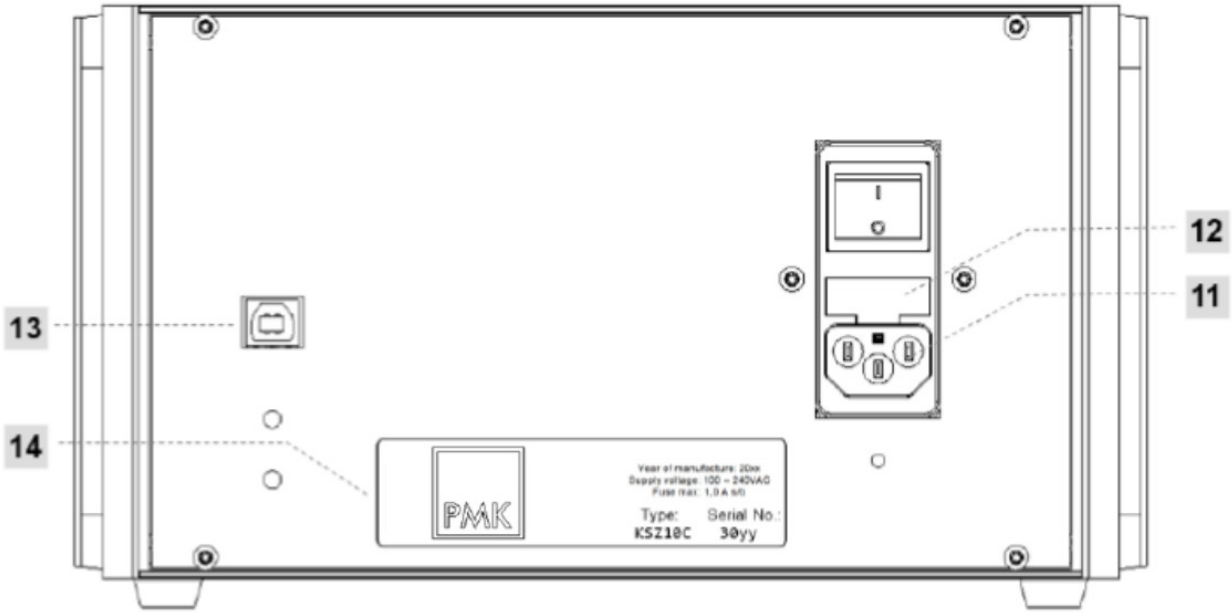


1. Power indication LED
2. Output current selection rotary switch
3. Pulse – push-button
4. Pulse indication flash LED
5. Current pulse output connector „+”
6. 200V ready indication LED
7. Current pulse output connector „-“

8. Contact bar for Clamp or Hall device
9. Trigger output BNC connector
10. Ground connector



Controls on the rear of the housing



11. Power input (100-240V AC) / power switch
12. Fuse 1A / 230V s/b (trage)
13. USB interface connector
14. Identification label

Operation

Establish operational readiness, connect probe

1. Connect the unit to the mains via a power cable to mains plug unit 11. (100 V – 240 V AC).
2. Insert the power bracket 8 into the safety sockets 5 and 7. If you are using a through-hole trans- former, plug it over the power bracket before switching on the unit.
3. Switch on the unit using the main switch (power plug unit) 11 on the back of the unit. The LED ‘PWR’ 1 lights up, the LED ‘TEST’ 4 flashes briefly.
4. After approx. 20 s the LED 6 ‘+200 V’ lights up and indicates that the capacitor bank is charged.
   The device is ready for operation.
   Set device, perform calibration procedure
5. Clamp a current clamp to the current bracket 8. If necessary, you can ground a current clamp via the ground socket 10.

6. Connect the trigger output 9 to your oscilloscope if you want to use the trigger function.
7. Set the current value with which you want to perform the test or calibration with the rotary switch 2. for calibration.

   ⚠ Do not change the current value during the test procedure!
8. Before starting the test procedure: To avoid measuring deviations due to temperature drift, you should temperature drift, you should pulse the instrument continuously for one minute with the current value which you want to with the current value with which you would like to carry out the test/calibration. To do this, press the toggle switch ‘TEST’ 3. The ‘TEST’ LED 4 flashes. Only then begin the test procedure.
9. Start the test by pressing the toggle switch ‘TEST’ 3. The LED ‘TEST’ 4 flashes.
10. Trigger an oscilloscope until a pulse appears.
11. Calibrate the current clamp or transducer.
12. When the calibration is finished, release the toggle switch ‘TEST’ 3. ‘TEST’ 3. LED 4 stops flashing.
13. When the instrument is switched off via the mains switch, the capacitor bank is discharged via a discharge resistor within 2 s.
14. The mains fuse of 1A slow-blow is located in the mains plug unit 11 on the rear of the instrument.

Notes

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Warranty

PMK warrants this product for normal use and operation within specifications for a period of two years from date of shipment and will repair or replace any defective product which was not damaged by negligence, misuse, improper installation, accident or unauthorized repair or modification by the buyer. This warranty is applicable only to defects due to material or workmanship. PMK disclaim any other implied warranties of merchantability or fitness for a particular purpose. PMK will not be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of use or data, interruption of business and the like), even if PMK has been advised of the possibility of such damages arising from any defect or error in this manual or product.

Declaration of Conformity

PMK declares the conformity of this product with the actual required safety standards in accordance with the Low Voltage Directive (LVD) 2014/35/EU:

CEI/IEC 61010-1:2010	Safety requirements for electrical equipment for measurement, control and laboratory use
	Part 1: General requirements

WEEE/ RoHS Directives

This electronic product is classified within the WEEE/ RoHS category list as monitoring and control equipment (category 9) and is compliant to the following EC Directives.

EC Directives:

WEEE Directive 2012/19/EU	Waste Electrical and Electronic Equipment
RoHS Directive 2011/65/EU	Restriction of the use of certain Hazardous Substances in Electrical and El ectronic Equipment

894-001-02A
Revision 09.2021

Documents / Resources

	PMK KSZ10C Series Current Probe Calibrators [pdf] Instruction Manual KSZ10C Series, Current Probe Calibrators, KSZ10C Series Current Probe Calibrators, Probe C alibrators, Calibrators

References

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