PeakTech 4300 Current Clamp Adapter Instruction Manual

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Contents

Safety Precautions

This product complies with the requirements of the following directives of the European Union for CE conformity: 2014/30/EU (electromagnetic compatibility), 2014/35/EU (low voltage), 2011/65/EU (RoHS). Overvoltage category II 300 V (P 4250); overvoltage category II 1000 V (P 4300); pollution degree 2.

CAT I: For signal level, telecommunication, electronic with small transient over voltage
CAT II: For local level, appliances, main wall outlets, portable equipment
CAT III: Distribution level, fixed installation, with smaller transient overvoltage than CAT IV.
CAT IV: Units and installations, which are supplied overhead lines, which are stand in a risk of persuade of a lightning, i.e. main-switches on current input, overvoltage-diverter, current use counter.

To ensure safe operation of the equipments and eliminate the danger of serious injury due to short-circuits (arcing), the following safety precautions must be observed.

Damages resulting from failure to observe these safety precautions are exempt from any legal claims whatever

General:

- Read these operating instructions carefully and make them available to subsequent users.
- It is essential to observe the warning notices on the device, do not cover or remove them.
- Pay attention to the use of the device and only use it in the suitable overvoltage category II.
- Familiarize yourself with the functions of the measuring device and its accessories before you carry out the first measurement. 14
- Do not operate the measuring device unsupervised or only protected against unauthorized access.
- Use the device only for the purpose of its determination and pay particular attention to warning notices on the device and information on the maximum input values.

Electric safety:

- Voltages over 25 VAC or 60 VDC are generally considered dangerous voltages.
- Only work on dangerous voltages by or under the supervision of qualified personnel.
- When working on dangerous voltages, wear suitable protective equipment and observe the relevant safety rules.
- Do not exceed the maximum permissible input values under any circumstances (risk of serious injury and / or destruction of the device)
- Pay special attention to the correct connection of the test leads
- Remove the test probes from the measurement object before changing the measuring function.
- Do not clamp around conductors with voltages equal or exceeding 1000 V DC or 750 V ACrms (P 4300) 300 V DC or 240 V ACrms (P 4250)
- Do not use these instruments for high-energy industrial installation measurement. These instruments are intended for use in installation overvoltage category II
- Check test leads and probes for faulty insulation or bare wires before connection to the equipments.

Measurement environment:

- Avoid any proximity to explosive and flammable substances, gases and dust. An electric spark could lead to an explosion or deflagration – danger to life!
- Do not carry out measurements in corrosive environments, the device could be damaged or contact points inside and outside the device could corrode.
- Avoid working in environments with high interference frequencies, high-energy circuits or strong magnetic fields, as these can negatively affect the device.

- Avoid storage and use in extremely cold, humid or hot environments, as well as long-term exposure to direct sunlight.
- Only use devices in damp or dusty environments in accordance with their IP protection class.
- If no IP protection class is specified, only use the device in dustfree and dry indoor rooms only.
- When working in damp or outside areas, pay particular attention to completely dry handles on the test leads and test probes.
- Before starting the measuring operation, the device should be stabilized at the ambient temperature (important when transporting from cold to warm rooms and vice versa)

Maintenance and Care:

- Never use the device if it is not completely closed.
- Before each use, check the device and its accessories for damage to the insulation, cracks, kinks and breaks. If in doubt, do not take any measurements.
- Change the battery when a battery symbol is displayed to avoid incorrect readings.
- Switch off the device before changing batteries or fuses and also remove all test leads and temperature probes.
- Charge the battery or change the battery as soon as the battery symbol lights up. Insufficient battery power can lead to inaccurate measurement results. Electric shocks and physical damage can result.
- If you are not going to use the device for a longer period of time, remove the battery from the compartment.
- Have maintenance and repair work on the device carried out only by qualified specialists.
- Do not lay the device upside down on the workbench or work surface to avoid damaging the control elements.
- Clean the housing regularly with a damp cloth and a mild cleaning agent. Do not use any caustic abrasives.

General

The models PeakTech® 4250 or 4300 clamp adapters are transducers which will allow your multimeter to measure electrical current up to 1000 A (P 4300)/ 60 A (P 4250) AC or DC, with a frequency response up to 400 Hz (P 4300) / 20 kHz (P 4250). When measuring current with these clamp adaptors, there is no need to break a circuit or to affect the insulation.

These models are designed with 4mm safety plugs to fit digital multimeters.

These clamp adaptors are built with a design of finger guard which ensures user perating the clamp adaptors under a safety situation, with a rugged case that is shock resistant and fire-retardant.

Specifications

General

P 4250: 9 mm conductor
P 4300: 57 mm conductor, 70 x 18 mm bus bars
Operating environment: 0° C…50° C at < 70 % R.H.
Storage environment: -20° C…60° C, 0…80 % R.H.
Temperature coefficient: 0.1 x (specified accuracy) /1° C (0 to 18° C, 28° C to 50° C)
Altitude: 2000m max. Low battery indicator: Red LED lightning
Battery type: 9VDC (NEDA1604) Battery life: 100 hours typical
Size: 195 x 70 x 33 mm (P 4250) (HxWxD) 244 x 100 x 44 mm (P 4300)

Weight: approx. 250 g (P 4250) approx. 520 g (P 4300)
Output: Coil cable with 4mm banana plug

Electrical (at 23° C ± 5 ° C, 70 % R.H. maximum)
Range: 0 ~ 1000 A AC or DC max.
Output: 0 ~ 1 Vrms or DC with > 1 M input impedance
Transfer rate: P 4250: 1 mV/10 mA (10 mA – 20 A DC/ ACrms) 1 mV/100 mA (20 A – 60 A DC/ACrms) P 4300: 1 mV/1 A
System Accuracy: Clamp accuracy + DMM accuracy

P 4250 accuracy:

DC A-range:
1 mV/10 mA

± (1.5 % ± 5 mA) 10 mA ~ 20 A

1 mV/100 mA

± (2 % ± 20 mA) 100 mA ~ 40 A
± (4 % ± 0.3 A) 40 A ~ 60 A

AC A-range:
1 mV/10 mA

± (2 % ± 5 mA) 10 mA ~ 10 A
(40 Hz ~ 2 kHz)
± (4 % ± 30 mA) 10 mA ~ 10 A
(2 kHz ~ 10 kHz)
± (6 % ± 30 mA) 10 mA ~ 10 A
(10 kHz ~ 20 kHz)
± (8 % ± 30 mA) 10 A ~ 15 A
(40 Hz ~ 20 kHz)

1 mV/100 mA

± (2 % ± 30 mA) 100 mA ~ 40 A
(40 Hz ~ 1 kHz)
± (4 % ± 30 mA) 100 mA ~ 40 A
(1 kHz ~ 2 kHz)
± (6 % ± 30 mA) 100 mA ~ 40 A
(3 kHz ~ 5 kHz)
± (8 % ± 0.3 A) 40 A ~ 60 A
(40 Hz ~ 5 kHz)

Load resistance: 10 k typical

P 4300 Accuracy:

0 ~ 400 A DC: ± (1.5 % + 2 A)
400 A ~ 800 A DC: ± (2.5 % + 2 A)
800 A ~ 1000 A DC: ± (3.5 % + 3 A)
0 ~ 400 A AC (50 Hz ~ 60 Hz): ± (1.5 % + 2 A)

0 ~ 400 A AC (61 Hz ~ 400 Hz): ± (3.0 % + 2 A)
400 A ~ 1000 A AC (50 Hz ~ 60 Hz): ± (2.0 % + 3 A)
400 A ~ 1000 A AC (61 Hz ~ 400 Hz): ± (3.5 % + 3 A)

Overload protection: 1200 A for 60 seconds maximum

Application Procedures

P 4250:

1. Insert the black banana plug into the COM jack and the red banana plug into the V- jack of any multimeter with a minimum input impedance of 10 k.
2. Set the power switch from “OFF” to the desired range, 1 mV/10 mA or 1 mV/100 mA position. The green LED will light to indicate that the clamp is switched on.
3. For current measurements below 2 A, set the unit to 1 mV/10 mA range and set the multimeter to 200 mV AC range for AC current measurements, or 200 mV DC range for DC current measurements. If the measured current exceeds 2 A, set the unit 1 mV/100 mA range.
4. When perform DC current measurement, always push the zero adjustment button on the clam until the multimeter reads zero.
5. Clamp the jaws around the current-carrying conductor and interpret the reading according to step 3 above.
6. When 1 mV/10 mA range of clamp unit is selected, multiple the reading displayed on the multimeter by “10” for interpreting the measured current value in mA. For example, if the multimeter reads 10 mV, the measured current is 10 x 10 = 100 mA.
   When 1 mV/100 mA range is selected, multiple the reading displayed on the multimeter by “100” for interpreting the measured current value in mA. For example, if the multimeter reads 5 mV, the measured current is 5 x 100 = 500 mA.

P 4300:

1. Insert black banana plug into the COM-jack and the red banana plug into the V- jack of any multimeter with a minimum input impedance of 1 M.
2. Set the power switch from “OFF” to the desired range, 200 A or 1000 A position. The green LED will light to indicate that the clamp is switched on.
3. For current measurement below 200 amperes, set the unit to 200 A range and set the multimeter to 200 mV AC range for AC current measurements or 200 mV DC for DC current measurements. The reading in mV corresponds directly to A (for example 100mV ≙ 100A).
4. For current measurements above 200 amperes, set the unit to 1000 A range and set the multimeter range to 2 V AC or DC, depending on whether measuring AC or DC current. The reading is now amperes x 1000.
5. When perform DC current measurement, always push the zero adjustment button on the clamp until the multimeter reads zero.
6. Clamp the jaws around the current-carrying conductor and interpret the reading according to step 3 or 4 above.

Application notes

1. In the case of DC current, the output is positive when the current flows from the upside (marking “+” textured on

the jaws) to the underside of the clamp. The red banana plug is positive.

2. In the case of DC current measurement, a hysteresis effect can occur so that it is impossible to zero the clamp properly. To eliminate this effect, open and close the jaws several times and push zero adjustment button.

Battery Replacement

Remove the screw on the back side, open the case and remove the battery from the battery room, and replace with a 9 V battery (NEDA 1604 type)

Caution!

Batteries which are used up dispose duly. Used up batteries are hazardous and must be given in the for this being supposed collective container.

Notification about the Battery Regulation

The delivery of many devices includes batteries, which for example serve to operate the remote control. There also could be batteries or accumulators built into the device itself. In connection with the sale of these batteries or accumulators, we are obliged under the Battery

Regulations to notify our customers of the following: Please dispose of old batteries at a council collection point or return them to a local shop at no cost. The disposal in domestic refuse is strictly forbidden according to the Battery Regulations. You can return used batteries obtained from us at no charge at the address on the last side in this manual or by posting with sufficient stamps.

Contaminated batteries shall be marked with a symbol consisting of a crossed-out refuse bin and the chemical symbol (Cd, Hg or Pb) of the heavy metal which is responsible for the classification as pollutant:

1. “Cd” means cadmium.
2. “Hg” means mercury.
3. “Pb” stands for lead.

This manual is according the latest technical knowing. Technical changings which are in the interest of progress, reserved.

Misprints and errors are reserved.

We herewith confirm that the units are calibrated by the factory according to the specifications as per the technical specifications.

We recommend to calibrate the units again, after 1 year.

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Documents / Resources

	PeakTech 4300 Current Clamp Adapter [pdf] Instruction Manual 4300 Current Clamp Adapter, 4300, Current Clamp Adapter, Clamp Adapter, Adapter