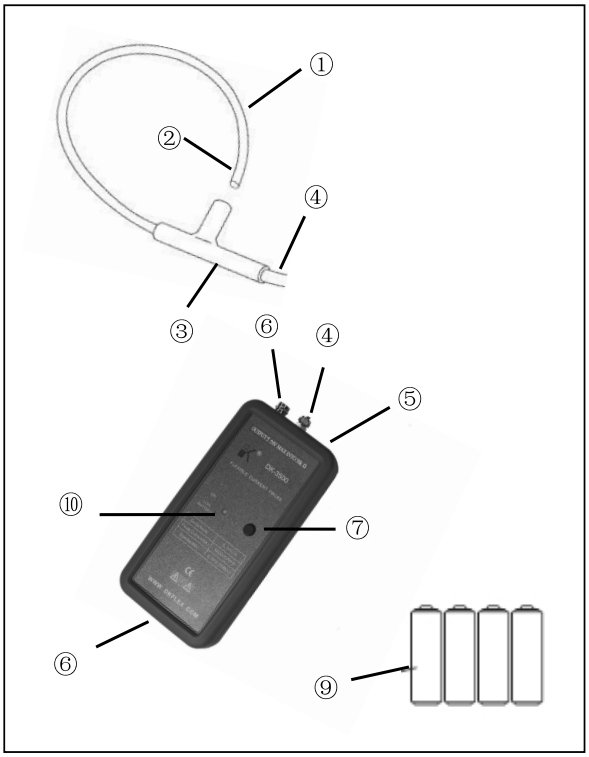
柔 性 電 流 探 頭
Flexible Current Probe

INSTRUCTION MANUAL
使 用 說 明 書

1 Features

The DKFLEX flexible current probe is ideal tool for electronic power development. because it's an equipment with the characteristic of easy using, small,flexible,accuracy, speedy and safety,it is available to all oscilloscope and digital meter . It can measure from small current to high current,and display the current on the oscilloscope, the Max. Bandwidth is 15MHz, is ideal for all aspects of Electronics Research and development.

2 Simple Structure Graph



① flexible coil

② removable end

③ fix ring

④ coils connecting cable

⑤ DC power connector

⑥ output cable

⑦ on-off switch

⑧ battery cover

⑨ 4*AA (1.5V)battery

⑩ LED instruction light

-Green light--normal voltage instruction

-Red light--low voltage instruction

3 Description

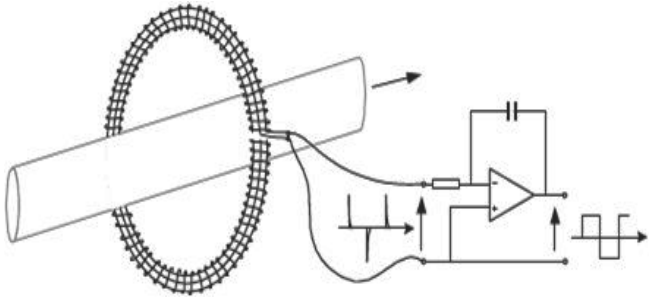
3.1 What is flexible current probe(transducer)?

Flexible current probe is a testing equipment,it can feel and test the current message,transforming the current messages into required electrical signals which meet the certain criteria,or other required output signals to satisfy information transmission, processing, storage, display, recording and control,etc.

3.2 How does flexible current probe(transducer) work?

The working principal of the flexible current transducer is is to set a loop directly on the measured conductor , AC current which flows on the conductor will produce an alternating magnetic field around the conductor, thus the coil induces a proportional to the electro-rheological changes in AC voltage signal.Establishing primary algorithm base on above working principal, we manufacture the flexible current probes under special physical design and processing method. Under above principals,this type of flexible current probe can provide good linearity, high accuracy,easy installation signal acquisition unit for all types of current monitoring instrument,it's the best of the current transducer for secondary development.

Flexible current transducer coil



3.3 Technique Characteristic

Flexible current probe is a safety equipment used for all oscilloscope or digital multimeter(with specialized connector),or for power recorder.

High linearity: Coil magnetic saturation component is not included, the output signal and under tested current signal are linearizing all the time.

Wide measuring range: bandwidth range:5Hz--15MHz, measuring current range:0.5A--350000A,No need to match other current transformer, is ideal for all aspects of e-research and development. Monitoring current waveforms for semiconductor switches, developing electronic power equipment, monitoring high frequency sinusoidal currents. Measuring fault currents terminal or short-circuit currents, analyzing harmonic current. Measuring and analyzing signal or earth leakage currents in 3-phase supply systems.

Instantaneous ±7Vp-p output to plug directly into data acquisition equipment, DMM or power recorders.

Easy calibration: High linearity make the calibration easily. Using the common reference signal to calibrate when operating system application. The calibrated measuring range is linearizing all the time,make the measuring result being accurate.

Easy installing: the coil is flexible,lockable,it can measure different kinds of object,can used under small apace,and the accuracy is 1%+2mV. No need changing main circuit,can measure irregularity conductor.

4 Safety Terms

⚠ In order to prevent electric shock, personal injury, or death, please be sure to read the following information carefully before using it.

Read the following safety instructions to avoid injury and prevent damage to this product or any products connected to it. Use this product only as specified.

To Avoid Fire or Personal Injury

Connect and Disconnect Properly. Connect the flexible current probe output to the measurement instrument before connecting the flexible current probe to the circuit under test. Disconnect the flexible current probe input and the flexible current probe ground wire from the circuit under test before disconnecting the probe from the measurement instrument.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all rating and markings on the product. Consult the instruction manual for further ratings information before making connections to the product.

Replace Batteries Properly. Replace batteries with the proper type and rating specified.

Do Not Operate Without Covers. Do not operate this product without the covers or panels.

Avoid Exposed Circuitry. Do not touch exposed connections and components when power is connected.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel or return to the manufacturer for check.

Do Not Operate in Wet/Damp Conditions

Safety statement and symbol

Terms in This Manual. These terms may appear in this manual:

⚠ **WARNING**. Warning statements identify conditions or practices that could result in injury or loss of life.

⚠ **CAUTION.** Caution statements identify conditions or practices that could result in damage to this product or other property.

Terms on the Product. These terms may appear on the product

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product. These symbols may appear on the product:

⚠ Attention refer to operation Instructions.

⧈ This instrument has double insulation

5 Power

DK flexible current probe provide battery and external adapter

Battery type: 4*1.5V AA

battery life : 70 hrs typ

DC voltage: 6V (10%) to 12V(-10%)

DC suspend current: 30mA(@6V DC)，30mA(@12VDC)

External power adapter

When green light is flashing,it’s LOW BATT warning,please change battery.

6 Notes

⚠Attention: “ ⟶ ” symbolized for the current direction,means the positive output current direction is the same as the current flow direction.

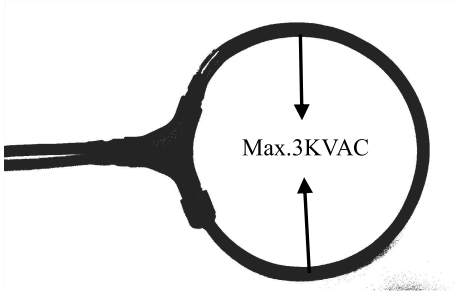
When using 2 or more than 2 probe in the meanwhile, do not put them in a same place(they must be separated). Or the accuracy will be influenced.

Before operating,make sure all device’s power is cut off,and make sure the earth connecting is good .

operating temperature -20℃---100℃。

⚠Attention : do not operating and use the coil catch the circuit with voltage higher than 3000VACV(see pic1), Personal injury or damage to the probe may result.

*If the operating circuit is more than 3000V,
please contact with the manufacturer.



Pic1

7 Basic operation

⚠ **Warning :** make sure all device earth connecting is good when operating. Cut off all device's power.

DK series flexible current probe(pic 2) is an item which can use with the oscilloscope or digital multimeter testing AC current signal, connect with the MT-246N(BNC-to-banana), the flexible current probe can be used with the DMM and data acquisition equipment.

Connecting method. Rope the conductor with coil(pic 2) and pay attention to the current direction,and lock the coil when everything is properly.

Connect the input section of BP-250 with the output section of flexible current probe, and connect the other end with the oscilloscope, setting the coupling resistance of the oscilloscope with 1MΩ, after finish all connection, turn on all power and the operation starts. All signal and data will show on the oscilloscope.(pic 3)

Pic 2

Pic 3

8 Package list

(1).Accessories: instruction manual*1, 1.5V AA battery *4, BP-250*1

(2)⚠**warning :** accessories buying statement:

In order to satisfy client's testing requirement,a BNC to banana connector(MT-246N) is recommended here for operating this Probe with DMM.
One BNC to banana plug adapter.
Product number MT-246N. Designed with color fool proof design to avoid polarity mistake when connecting to digital meter.
Please contact us if you want to buy.

9 Replace battery

⚠**Warning:** before cut off the external power,do not open the cover and pennal.

When green light is flashing, symbolizing for LOW BATT,change battery under instruction.

Open the cover on the bottom of the product,change batteries,when finish,reassemble the cover.

⚠ **Warning:** battery option is designed for outdoor urgent operating,we do not suggest using it for the 35mA power consumption.

When operating with external power,please remove the battery from the product,avoid abnormal internal charge lead to leakage and circuit board corrosion

10 Cleaning and storage

Pay attention on the protection of the flexible current probe, do not clash and squeezing and placed in a damp place.

For maintenance, only use specified spare parts. The manufacturer will not be held responsible for any accident occurring following repair done other than by its after sales service or approved repairs.

If not using this probe for more than 10 days,please remove the battery and stored the battery and probe separately.

This probe does not require any particular cleaning. If necessary,clean the case with a cloth slightly moistened with soapy water.

11 Warranty

Unless notified to the contrary, our instruments are guaranteed against any manufacturing defect or material defect. They do not bear the specification known as the safety specification. Our guarantee, which may not under any circumstances exceed the amount of the invoiced price, goes no further than the repair of our faulty equipment, carriage paid to our workshops. It is applicable for normal use of our instruments, and does not apply to damage or destruction caused, notably by error in mounting, mechanical accident, faulty maintenance, defective use, overload or exceed voltage.

Our guarantee is applicable for three (3) years after the date at which the equipment is made available. The repair, modification or replacement of a part during the guarantee period will not result in this guarantee being extended.

12 Maintenance

Maintenance, repairs under or out of guarantee.Please return the product to the manufacturer.

13 The electric parameters and specifications

Please refer to page 21 .....Attached list

DKFLEX flexible current probe specification:

Model	Sensitivity mV/A	Peak-Peak Current (A)	Min. Current (A)	Noise (mV Pk-Pk)	Bandwidth (3db)	Accuracy
High Sensitivity Ranges of DK flexible current probe						
DK-Mini070	100	70	0.7	12	100Hz-4/8MHz	1%+2mV
DK-Mini140	50	140	1.4	12	100Hz-4/8MHz	1%+2mV
DK-Mini350	20	350	3.5	10	60Hz-4/8MHz	1%+2mV
Middle Sensitivity Ranges of DK flexible current probe						
DK-0700	10	700	7.0	14	5Hz-6/10MHz	1%+3mV
DK-1400	5	1400	14	14	5Hz-15MHz	1%+3mV
DK-3500	2	3500	35	10	5Hz-15MHz	1%+2mV
DK-7000	1	7000	70	8	5Hz-15MHz	1%+2mV
DK-14000	0.5	14000	140	5	5Hz-15MHz	1%+2mV
Standard Ranges of DK flexible current probe						
DK-35000	0.2	35000	350	5	5Hz-15MHz	1%+2mV
DK-70000	0.1	70000	700	5	5Hz-15MHz	1%+2mV
DK-140000	0.05	140000	1400	5	5Hz-15MHz	1%+2mV
DK-350000	0.02	350000	3500	5	5Hz-15MHz	1%+2mV
DK-2000	2	2000	35	10	50Hz-150KHz	2%

Coil circumference:120mm to 1000mm
Coil cross section(max): 3KV,standard 600V/1KV(depends on the coil circumference)
Temperature range: -10℃-100℃
Cable length(from box to coil):2m(standard) or 4m
Power supply: DC supply adaptor or 6-9v or 4 batteries
Integrator box dimension: H=160mm,W=80mm,D=28mm
Output socket:BNC