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Flexible Current Probe

GWR000（A/B/C）

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1. Summary

GWR000（A/B/C）Series are AC Flexible Current Probe .It has the advantages of high bandwidth, high precision (typically 1%) characteristics. The frequency can be from several Hz to tens of MHz, current ranges from mA level to kA level, which solves the problem of current test.

The main features include:

- easy to measure with thin ,flexible ,clip-around coil; Non-intrusive-loading the circuit under test by only a few pH;
- BNC Output: easy to plug directly in scope, data acquisition equipment, DVM or power recorders;
- USB interface Power Supply， ease and flexibility to use;
- Sound and LED alarm function, the design is more humanized；
- Can be customized according to customer requirements, meet the test requirements of special applications.

GWR000A Series: Has an extremely thin, clip-around Rogowski coil of typically 1.6mm cross-section. Cross section for 1kV isolation. Accuracy is ±2% of reading.Such a thin coil enables currents to be measured in the most difficult to reach parts of a power Electronic converter with negligible disruption to the circuit under test. It can be used in MOSFET or IGBT devices as small as TO-220 or TO-47. Cross section only 4mm for 2kV isolation. Accuracy is ±2% of reading.

GWR000B Series probe: Cross section only 3.8mm typically, Safe Coil Voltage Isolation 2kVpk, Accuracy of ±2% of reading. It is ideal for monitoring currents in even the most difficult to reach parts of a circuit.

GWR000C Series probe: Cross section only 8mm typically, Safe Coil Voltage Isolation 10kVpk, Accuracy of ±1% of reading. It is ideal for power electronics development work because it combines an easy to use thin, flexible, clip-around coil with an ability to accurately replicate fast switching current waveforms be they sinusoidal, quasi-sinusoidal or pulsed.

2. Application

- Measuring AC currents superimposed on large DC currents
- Measuring capacitor ripple current
- Monitoring current waveforms for semiconductor switches
- Development and servicing of power electronic equipment
- Monitoring currents in restricted places
- Measuring fault currents or circuit breaker interruption currents
- Measuring harmonic current components
- Monitoring high frequency sinusoidal , pulsed or transient currents
- Measuring signal or earth leakage currents in 3-phase supply systems
- Switching current waveforms in MOSFET or IGBT devices as small as TO-220 or TO-47

3. Electrical Specifications

Measuring conditions:23℃;60%RH;with conductor central in the loop.

3.1 GWR000A Series

Model	Sensitivity (mV/A)	Peak		Noise max (mV Vpp)	Droop typ. (%/ms)	LF bandwidth -3dB(Hz)	HF bandwidth -3dB(MHz)	Accuracy typ.	Insulation voltage
		Current (kA)	di/dt (kA/μS)						
GWR003A	200	0.03	2	20	80	116	30	2%	1kV
GWR 006A	100	0.06	4	20	65	67	30		
GWR 012A	50	0.12	8	15	35	34	30		
GWR 030A	20	0.3	20	15	9	9.2	30		
GWR 060A	10	0.6	40	10	6	6.2	30		
GWR 120A	5	1.2	70	10	3	3.2	30		
GWR 300A	2	3.0	70	5	2	2	30		
GWR 600A	1	6.0	70	5	2	2	30		

3.2 GWR000B Series

Model	Sensitivity (mV/A)	Peak		Noise max (mV Vpp)	Droop typ. (%/ms)	LF bandwidth -3dB(Hz)	HF bandwidth -3dB(MHz)	Accuracy typ.	Insulation voltage
		Current (kA)	di/dt (kA/μS)						
GWR 012B	50	0.12	0.8	3	70	80	12	2%	2kV
GWR 030B	20	0.3	2.0	5	40	50	12		
GWR 060B	10	0.6	4.0	8	3	3.5	12		
GWR 120B	5	1.2	8.0	14	0.9	1.0	12		
GWR 300B	2	3.0	20	7	0.7	0.8	12		
GWR 600B	1	6.0	25	5	0.5	0.6	12		
GWR 121B	0.5	12	25	3.5	0.35	0.4	12		
GWR 301B	0.2	30	25	3	0.2	0.2	12		
GWR 601B	0.1	60	25	3	0.1	0.1	12		
GWR 122B	0.05	120	25	3	0.06	0.05	12		

3.3 GWR000C Series

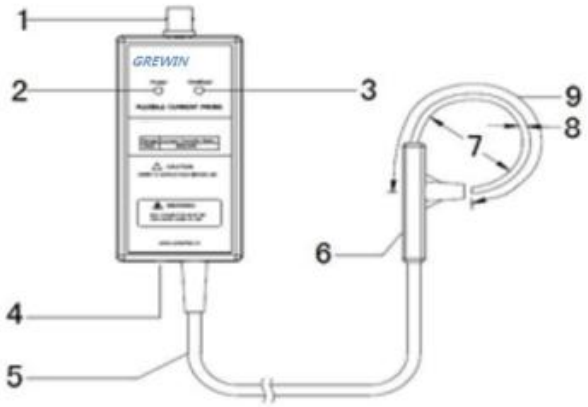
Model	Sensitivity (mV/A)	Peak		Noise max (mV Vpp)	Droop typ. (%/ms)	LF bandwidth -3dB(Hz)	HF bandwidth -3dB(MHz)	Accuracy typ.	Insulation voltage
		Current (kA)	di/dt (kA/μS)						
GWR012C	50	0.12	0.8	3	70	80	10	1%	10kV
GWR 030C	20	0.3	2.0	2.5	40	50	10		
GWR 060C	10	0.6	4.0	8	3	3.5	10		
GWR 120C	5	1.2	8.0	14	0.9	1.0	10		
GWR 300C	2	3.0	20	7	0.7	0.8	10		
GWR 600C	1	6.0	40	5	0.5	0.6	10		
GWR 121C	0.5	12	40	3.5	0.35	0.4	10		
GWR 301C	0.2	30	40	3	0.2	0.2	10		
GWR 601C	0.1	60	40	3	0.1	0.1	10		
GWR 122C	0.05	120	40	3	0.06	0.05	10		

3.4 GWR000(A/B/C) Series

Max. output voltage	±6Vpk
Terminal load	≥100kΩ
Power supply	USB 5V/1A
Safety standard	EN61010-1:2010
EMC standard	EN61326-1:2013;EN61000-3-2:2014;EN61000-3-3:2013

4. Products and Accessories

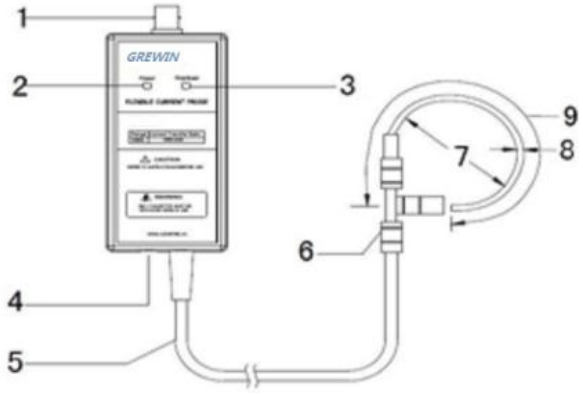
4.1.1 GWR000A Products



5.

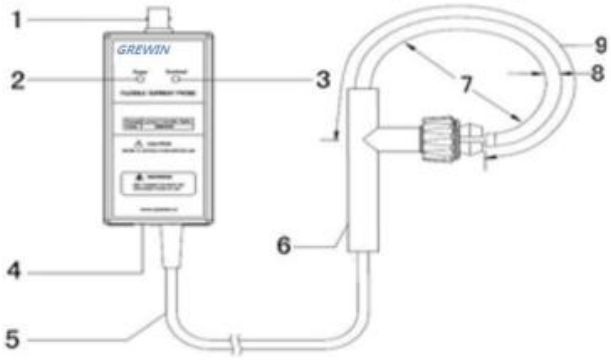
- Output Interface: standard BNC interface, connect to any manufacturer oscilloscope with the BNC Cable.
- Power indicator LED: When the power adapter is plugged ,theplugged, the green LED lights.
- Overload indicator LED: When the current measured exceed the range, the red LED lights and the buzzer alarms.
- Power plug: Standard USB (B) interface.
- Cable : Standard 1m, Customized according to user needs.
- Current probe direction: the current to the direction shown through, output is positive, otherwise the output is negative.
- Coil Diameter (min): 25mm typically.
- Coil Cross Section: 1.6mm typically.
- Coil Circumference：80mm typically

4.1.2 GWR000B Products



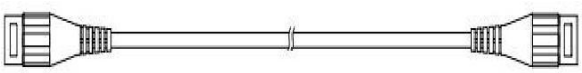
- Output Interface: standard BNC interface, connect to any manufacturer oscilloscope with the BNC Cable. Power indicator LED: When the power adapter is plugged, the green LED lights.
- Overload indicator LED: When the current measured exceed the range, the red LED lights and the buzzer alarms.
- Power plug: Standard USB (B) interface.
- Cable : Standard 1m, Customized according to user needs.
- Current probe direction: the current to the direction shown through, output is positive, otherwise the output is negative.
- Coil Diameter: 55mm typically.
- Coil Cross Section: 3.8mm typically.
- Coil Circumference：200mm typically.

4.1.3 GWR000C Products

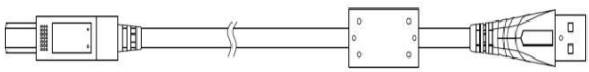


- Output BNC port: can connect to any brand oscilloscope with the BNC port.
- Power indicator LED
- Overload indicator LED: When the current measured exceed the range, the red LED lights and the buzzer alarms.
- Power plug: Standard USB (B) interface.
- Cable : Standard 4m, Customized according to user needs.
- Current probe direction: the current to the direction shown through, output is positive, otherwise the output is negative.
- Coil Diameter: 150mm typically.
- Coil Cross Section: 8mm typically.
- Coil Circumference：600mm typically

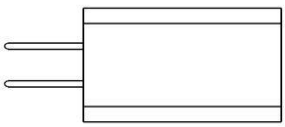
4.2 Accessories



BNC Cable (CK-310：1m)



USB Power Cable（AM-BM，1.5m）



Standard Accessory：USB Adaptor(USB Output：DC5V/1000mA)

5. Typical Mechanical Specifications

Type	GWR000A	GWR000B	GWR000C
Coil circumference	80mm	200mm	600mm
Coil cross Section	1.6mm	3.8mm	8mm
Coil diameter	25mm	55mm	150mm
Cable length	1m	2m	4m
BNC cable	1m(standard accessory) ,2m(optional accessory)		
Integrator box dimension	119*49*28mm		
USB power cable（AM-BM）	1.5m		
USB adaptor	59mm*30mm*20mm		
Probe weight	153g	195g	377g

6. Environment Specifications

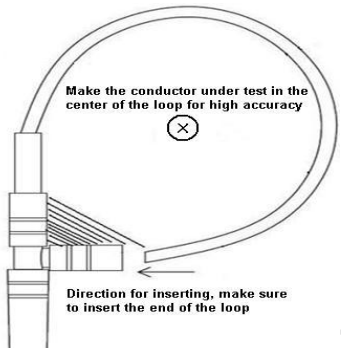
Operating temperature	Coil and cable	-20℃～100℃
	Integrator box	0℃～50℃
Storage temperature	-30℃～70℃	
Operating humidity	≤85%RH	
Storage humidity	≤90%RH	

7. Measurement Procedure

- Have the power supply and oscilloscope ready for waveform measurement ready. The oscilloscope set 1MΩ, and attenuation coefficient. According to the probe type. For example ,GWR012B:20X, GWR060B:100X, GWR120B:200X, GWR600B:1000X.
- Connect the USB Adaptor to the probe, the green power indicator light.
- Connect the Coil Cross Section. Ensure the Coil Cross Section inserted in the end part, or affect the measuring accuracy.
- After measurement, disconnect the measured signal and Coil Cross Section.
- Disconnect the power supply and preserve the probe.

8. Attentions

- To ensure the measurement accurate, the measured wire should be through the center of the probe loop.
- The measurement has maximum error when the wire has put in the junction shadow area of loop. Please avoid the area.
- Ensure the Coil Cross tip has been inserted in the end part for high measuring accuracy.



The shadow region has the maximum measurement error

9. Care and Maintenance

- Keep product surfaces clean and dry.
- When cleaning the probe, do not use chemical agent. instead, please cleaning it with soft and dry cloth.
- Be careful to avoid damaging the insulation surface while taking measurements.
- Never attach the clamp to a circuit that operates at more than the maximum rated voltage to earth.
- Do not use it in a wet or dusty environment.
- When probe is not needed, please put it in the packaging, placed in a cool, clean and dry place.
- When transporting the probe, please put it in the shockproof packaging of our company
- Do not pulling the input lines and output lines, avoid excessive twisting, bending or knot.

10. Service Strategy

Please refer to the instruction on warranty card

11. Packing List

List of goods	
Name	**Quantity**
PROBE	1
USB Adapter(5V/1A)	1
USB Cable（AM-BM）	1
BNC Cable(CK-310)	1
Tool Bag	1
Instruction Manual	1
Warranty Card	1
Test Report	1
BNC Cable（CK-320）	1 (optional accessory)
USB 5V Mobile Power	1 (optional accessory)