KG

KEISOKU GIKEN Co., Ltd.

Essential tool for periodic inspection of equipment power supplies

Digital Ripple & Noise Meter

RM-104

Easy and error-free measurement

https://www.keisoku.co.jp/pw

Digital Ripple & Noise Meter

RM-104

- Automatic measurement possible which is correlated tooscilloscope reading.
- Easy one-touch measurement by digital technology!
- Automatic “PASS” or “FAIL” judgment!
- Compliant with JEITA* measurement standards.
  JEITA: Japan Electronics and Information Technology Industries Association

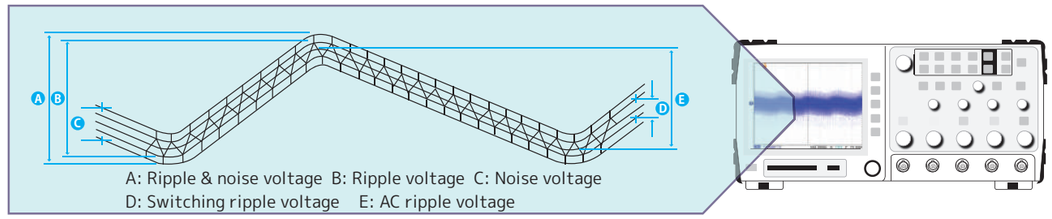
It is mandatory to conduct periodic maintenance of the power supplies in industrial equipment used in power plant or other public services.
As power supply is the key devise in the system and their system will shut off when power supply failed and will cause serious damage to our life. Normally ripple voltage and noise voltage of the power supply are measured in the periodic check but those are not that straightforward.

Since the measuring object is “NOISE” , reading waveforms on the oscilloscope is very complicated and good experience is needed. However digital ripple & noise meter can discriminate them and read them accurately.

RM-104 measures 5 types of voltage easily!

The output of switching power supply contains various kinds of waveforms and are all combined. With RM-104, 5 different voltages can be measured easily.

Diagram of Ripple & Noise waveform



A: Ripple & noise voltage B: Ripple voltage C: Noise voltage
D: Switching ripple voltage E: AC ripple voltage

*It is possible to judge if the capacitance of the electrolytic capacitor used inside of the switching power supply is in allowable range or not by measuring
D (Switching ripple) or B (Ripple) above.

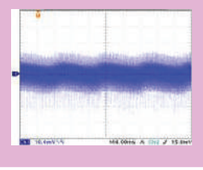
Up to now·····

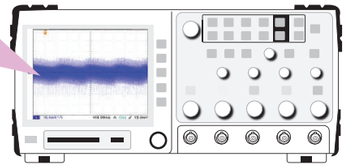
It is difficult to read ripple voltage from complex waveforms...

Oscilloscope is bulky and not that user friendly too···

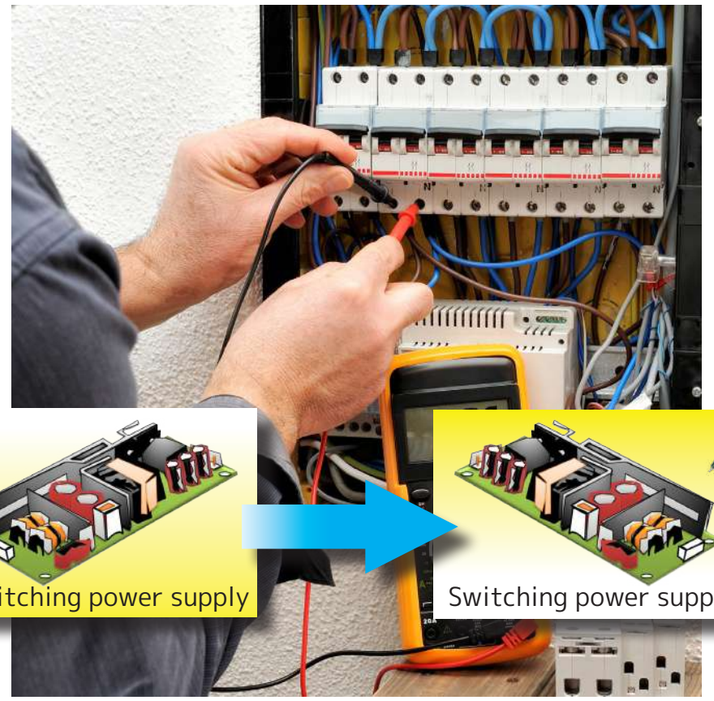
We need easy way···

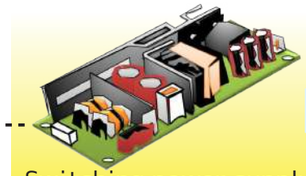
Noise? Ripple?





Oscilloscope





Switching power supply

Switching power supply

From now on···

Do by whoever, it is the same!

One touch simple measurement

The next calibration year and month are also displayed at startup!

Differential probe DP-100

Ripple & Noise Meter RM-104

LAN-compatible for data collection at remote locations!

Measurement by oscilloscope	Measurement by RM-104
The reading result is heavily relying to the operator.	No reading error due to digital display
Panel operation is not simple	One touch simple measurement
Need additional differential probes to measure	Passive type differential probe as a standard accessory

Specification

1.DC Volt. Measurement				
Range		±6.0000 V	±60.000 V	±500.00 V
Resolution		0.1 mV	1.0 mV	10.0 mV
Measurement TimeMeasurement Time		-6.0000 V ～ 6.0000 V	-60.000 V ～ -5.600 V 5.600 V ～ 60.000 V	-500.00 V ～ -56.00 V 56.00 V ～ 500.00 V
Accuracy*5		±0.025 % of rdg. ±0.025 % of f.s.		
Max. Applied Volt.		±500 V		
Measurement Time *4		less than 90ms(Fast Mode) / less than250ms(Slow Mode)		
2.Ripple & Noise Measurement				
Ranges		300.0 mVp-p	3000 mVp-p	
Resolution		0.1 mV	1.0 mV	
Accuracy*1, *2, *5		±2 % of rdg. ±1 % of f.s.		
Filter	THRU	50 Hz ～ 100 MHz		
	L.F filter	50 Hz ～ 2 kHz		
	H.F filter	2 kHz ～ 100 MHz		
	20 MHz bandwidth limitation	50 Hz ～ 20 MHz		
Ripple Ratio*3		0.0 % ～ 50.0 % (0.5 % increment)		
Measurement Time*3,*4		Approx. 170 ms		
3.Interface				
GP-IB		Compliant with IEEE488.1		
LAN *6		IEEE 802.3		
USB		USB2.0 compliant (Full-Speed)		
OUT PORT: PASS,FAIL		Photocoupler output 24V common (14-pin connector) *8		
OUT PORT: start trigger		Photo-coupler input 12V common (14-pin connector) *7		
OUT PORT: 4 CH output		Photo-coupler output 24V (for SC-83 control) *8		
4.Input terminals, cables				
Impedance		DC 1 MΩ, high frequency 50 Ω		
Cable		DP-100 or 50 Ω coaxial cable, 1.5 m		
5.General				
Power supply		AC85 ～ 264V, 50/60Hz（47 ～ 63）		
Power consumption		30VA or less		
Dimensions *9		180(W) x 85(H) x 300(D)mm		
Weight		Approx. 1.8kg		
Withstand voltage		Input to output 3000V AC for 1 minute / Input to FG 1500V AC for 1 minute		
Insulation resistance		Between input and FG DC500V 30MΩ min.		
Operating temperature/humidity range		0℃～ 40℃　20% ～ 85%RH or less（No condensation）		
Storage temperature/humidity range		-20℃～ 60℃　20% ～ 85%RH or less（No condensation）		
advanced		Less than 2000m		

*1 : Effective when Ripple Ratio is setup between 0% and 10%.*2 : Effective when Frequency Range is between 10kHz and 10MHz.*3 : Operates when Frequency Range is between 10kHz and 100MHz.*4 : Measurement Time in the same Measurement Range.*5 : Guaranteed for 6 months when Operational Temp. is 23+-5degree C and Humidity is less than 70degree C.*6 :Factory option.*7 :Photocoupler input Input rating: 12V 12mA (input resistance 1KΩ) *8 :Photocoupler output Output rating: 24V 10mA MAX *9 :External dimensions do not include interface protrusions.
・The calibration year and month are displayed on the screen at startup. ・Compatible with previous model RM-103.

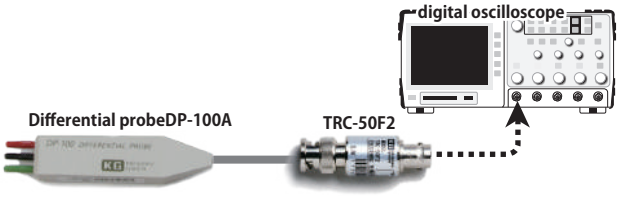
DP-100A Differential probe(One is attached to RM-104 main unit as standard)

The DP-100A reduces common mode noise drastically then measures the signal between two measurement points accurately.
No power to the probe is required.

Maximum input voltage	± 200V DC or AC p-p
Frequency bandwidth	DC ～ 100MHz
Characteristic Impedance	50Ω（1MHz or higher）
Input capacitance	0.01μF（When RM-104 is connected）
Common mode rejection ratio	40dB（100MHz）
Attention ratio	1:1

TRC-50F2 High Frequency Termination Resistor

When measuring Ripple & noise with an oscilloscope, using this 50 ohm terminator (50 ohm resistor and DC cut capacitor inclusive) is recommended for accurate measurement because it can resuce Noise Reflection due to impedance unbalance. The TRC-50F2 conforms JEITA specification.



Max. Input Voltage	DC ± 500V
Frequency bandwidth	1MHz ～ 100MHz
Characteristic Impedance	50 Ω（high-frequency termination）
Allowable continuous power	0.25W
Connector	BNC
Dimensions	17 φ× 54 (L) mm

※ The RM-104 has a built-in circuit equivalent to the TRC-50F2.

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Agents

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