

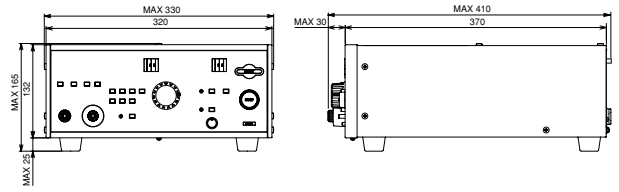
WITHSTANDING VOLTAGE & INSULATION TESTER

自动耐压绝缘测试仪 TOS8830C

对应标准测试的耐压 / 绝缘电阻两用型号

Withstanding voltage/insulation 2 tests in one model supporting the standard test

新产品



也备有采用
英文的型号

The English inscription model
is also provided.

还备有操作面板和使用说明书采用英文的型号。有关这些型号的详情，欢迎来电垂询。

There is a model that comes with English version of the operation panel and operation manual. For details, contact us.

特点 Features

- 耐电压和绝缘电阻试验可在一个工序处理
- 耐电压达 AC 4 kV / 100 mA
- 变压器容量 500 VA
- 绝缘电阻达 500 V / 999.9 MΩ
- 操作面板和使用说明书使用简体中文
- 与本公司过去产品 (*1) 相比，体积约减少了 50%，重量约减轻了 25%
- 电压计以 3 位数字显示
- 绝缘电阻计以 4 位数字显示
- 判定为窗口 - 比较仪方式
- 远程控制功能
- 输出 PASS、FAIL 等接点信号
- 装备了 1 秒~99 秒的数字计时器
- Carries out withstanding voltage and insulation resistance tests in a single process.
- Withstanding voltage: 4 kVAC/100 mA
- Transformer capacity: 500 VA
- Insulation resistance: 500 V/999.9 MΩ
- The operation panel and operation manual are in simplified Chinese.
- Small Size and Light Weight
- The voltmeter provides a 3-digit digital display.
- The insulation resistance meter provides a 4-digit digital display.
- The window comparator method is adopted for judgment.
- Remote control function
- Output of contact point signals such as PASS and FAIL
- Digital timer adjustable to 1 to 99 seconds

*1 与本公司 TOS8850A 的比较
*1 Comparison with KIKUSUI TOS8850A

TOS8830C 是安全试验设备的世界性品牌“KIKUSUI”所创制的、面向中国的生产和检查线的耐电压绝缘电阻测试器。该产品以本公司的质量和可靠性作保证，是为了适应中国生产现场所要求的“小型轻便、价格优良”这一需求而开发的。

TOS8830C 可适应最大输出 AC 4 kV / 100 mA 的耐电压试验，以及最大 500 V / 999.9 MΩ 的绝缘电阻试验。各试验除单独操作以外，可以进行“耐电压→绝缘电阻”或“绝缘电阻→耐电压”试验。操作面板继承了过去产品 (TOS8850A / TOS8870A) 的“操作性和安全性”，指示计便于识别的 LED 数字仪表上标记出简体中文等，在设计中充分考虑了现场操作人员的便利。另外，结构和主要部件也进行了彻底的修正，实现了优化，与本公司过去产品 (*1) 相比，体积约减少了 50%，重量约减轻了 25%，同时价格也便宜。

TOS8830C is aimed to meet the needs of manufacturing plants across Asia for more compact testers while maintaining the level of quality and reliability inherent in our existing product portfolio.

TOS8830C supports withstanding voltage tests involving power outputs of up to 4 kVAC/100 mA (transformer capacity of 500 VA), as well as insulation resistance tests at up to 500 V/999.9 MΩ. While each of these tests can be conducted separately, it is also possible to have a series of tests run in succession automatically, as in cases where a withstanding voltage test is performed first followed by an insulation resistance test or vice versa. While inheriting the valuable assets of “ease of operation and safety” from its predecessors, TOS8830C adopts an operator-friendly design including an easy-to-view LED digital meter. The structure of the tester and its circuit have also been reviewed and optimized thoroughly, making TOS8830C smaller and lighter.



规格 Specifications

本章描述本测试仪的电气规格和机械规格。若无特别指定，本测试仪规格的设置及条件如下。

●预热时间：30分 ●温度：5°C 到 35°C ●湿度：20% 到 80% RH (无凝结露水) ●xx% of reading 是指电压计 (或电阻计) 的读数的 xx%。

耐压测试仪

[输出部]

输出电压范围	0.05 kV 到 4.00 kV/1 量程
最大额定负载(*1)	400 VA (4 kV/100 mA) (输入电压为 220 V 时)
变压器容量	500 VA
输出电压波形(*2)	商用电源波形
电压变动率	10% 以下 (从最大额定负载到无负载的迁移过程)
短路电流	200 mA 以上 (输出电压 1.0 kV 以上时)
开关	使用过零投入开关

[电压计]

显示	数字显示 3 位
测量范围	0.00 kV 到 5.00 kV/2 量程
显示分辨率	10 V
精确度	$V_m \geq 1.00 \text{ kV} : \pm (2\% \text{ of reading} + 10 \text{ V})$ $V_m < 1.00 \text{ kV} : \pm (2\% \text{ of reading} + 20 \text{ V})$ V_m : 测量电压值
响应	平均值响应 / 有效值显示

*1 关于输出时间限制
根据电流上限基准值以及工作温度，连续输出时间会受到限制。

*2 关于测试电压波形
若容量性的负载上加载交流电压，则根据负载容量值的不同，可能即使与无负载相比，输出电压还要上升。若是负载了容量值对电压有依存性的测试材料 (如陶瓷电容等)，则可能产生波形扭曲。但测试电压为 1.5 kV 时，1000 pF 以下容量的影响可忽略不计。

[判定功能]

判定方法	双限比较器方式
上限基准值	1/2/4/8/10/25/100 的 7 量程 通过量程的组和，可在 1 mA 到 50 mA 范围内，以 1 mA 为单位设定
下限基准值	0 到上限基准值的 1/2 处连续可变
判定精确度	上限基准值的 $\pm (5\% + 20 \mu\text{A})$ 下限基准值的 $\pm 20\%$

[时间]

测试时间	1 s 到 99 s (备有关闭定时器功能)，分辨率：1 s
精确度	-0 ms, +50 ms

绝缘电阻测试仪

[输出部]

额定输出电压	-500 Vdc
精确度	$\begin{pmatrix} -500 & +20 \\ & -0 \end{pmatrix} \text{Vdc}$
最大额定负载	0.5 W (-500 V/1 mA)
最大额定电流	1 mA
波纹	2 Vp-p 以下 (500 V 无负载时) 10 Vp-p 以下 (最大额定负载时)
电压变动率	1% 以下 (从最大额定负载→无负载)
短路电流	12 mA 以下
放电功能	测试结束时强制放电 (放电电阻为 25 kΩ)
输出电压监视功能	输出为 -10% 以下时，切断输出保护功能工作

[电阻计]

显示	$R_m < 10.0 \text{ M}\Omega : \square\square.\square \text{ M}\Omega$ $10.0 \text{ M}\Omega \leq R_m < 100.0 \text{ M}\Omega : \square\square.\square \text{ M}\Omega$ $100.0 \text{ M}\Omega \leq R_m < 1000 \text{ M}\Omega : \square\square.\square \text{ M}\Omega$ R_m : 测量绝缘电阻值
有效测量范围	0.50 MΩ 到 999.9 MΩ
精确度	$R_m < 20 \text{ M}\Omega : \pm (5\% \text{ of reading})$ $R_m \geq 20 \text{ M}\Omega : \pm (10\% \text{ of reading})$ R_m : 测量绝缘电阻值 湿度 20% 到 70%RH (无凝结露水状态)、没有测试导线晃动等的干扰
保持功能	在合格期间内，保持测试结束时的测量电阻值

Provides the electrical and mechanical specifications for the TOS8830C. The specifications are based on the following conditions and settings, unless otherwise specified.

●Warm-up time: 30 minutes ●Temperature: 5°C to 35°C ●Humidity: 20% to 80% R.H. (with no dew condensation) ●"xx% of reading" represents xx% of voltmeter (or resistance meter) reading.

Withstanding Voltage Tester

[Output section]

Output voltage range	0.05 kV to 4.00 kV / single range
Maximum rated load (*1)	400 VA (4 kV/100 mA) (at an input voltage of 220 V)
Transformer capacity	500 VA
Output voltage waveform (*2)	AC line waveform
Voltage regulation	10% or less (during transition from the maximum rated load to no-load)
Short-circuit current	200 mA or more (at output voltage of 1.0 kV or more)
Switching	A zero-start switch is used.

[Voltmeter]

Display	Digital three-digit indication
Measurement range	0.00 kV to 5.00 kV/double ranges
Display resolution	10 V
Accuracy	$V_m \geq 1.00 \text{ kV} : \pm (2\% \text{ of reading} + 10 \text{ V})$ $V_m < 1.00 \text{ kV} : \pm (2\% \text{ of reading} + 20 \text{ V})$ where V_m : measured voltage value
Response	Mean value response/rms value indication

*1 Time limitations on the output
The continuous output time may be limited depending on the upper limit of the reference current value and the ambient temperature.

*2 Test voltage waveform
If AC voltage is applied to a capacitive load, the output voltage in certain cases may rise above the value at no-load, depending on the value of the capacitive portion of the load. Moreover, for samples whose capacity values show voltage dependency (as with ceramic capacitors), waveform distortions may result. However, for a test voltage of 1.5 kV, the effects of a capacity of 1000 pF or less may be ignored.

[Judgment function]

Judgment method	Compares the reference values and measured leakage current using a window comparator. The result is returned as a PASS or FAIL.
Upper reference limit	1/2/4/8/10/25/100 mA (7 ranges) May be set from 1 mA to 50 mA in 1 mA steps by a combination of ranges.
Lower reference limit	Continuously variable from 0 to 1/2 of the upper reference limit
Judgment accuracy	$\pm (5\% + 20 \mu\text{A})$ with respect to the upper reference limit $\pm 20\%$ with respect to the lower reference limit

[Time]

Test time	1 s to 99 s (the TIMER off function provided), Resolution: 1 s
Timer accuracy	-0 ms, +50 ms

Insulation Resistance Tester

[Output section]

Rated output voltage	-500 Vdc
Accuracy	$\begin{pmatrix} -500 & +20 \\ & -0 \end{pmatrix} \text{Vdc}$
Maximum rated load	0.5 W (-500 V / 1 mA)
Maximum rated current	1 mA
Ripple	2 Vp-p or less (at 500 V and no-load) 10 Vp-p or less (at the maximum rated load)
Voltage regulation	1% or less (during transition from the maximum rated load to no-load)
Short-circuit current	12 mA or less
Discharge function	Forced discharge at the end of testing (discharge resistance of 25kΩ)
Output voltage-monitoring function	If the output becomes -10% or below, the output is shut off for safety reasons.

[Resistance meter]

Display	$R_m < 10.0 \text{ M}\Omega : \square\square.\square \text{ M}\Omega$ $10.0 \text{ M}\Omega \leq R_m < 100.0 \text{ M}\Omega : \square\square.\square \text{ M}\Omega$ $100.0 \text{ M}\Omega \leq R_m < 1000 \text{ M}\Omega : \square\square.\square \text{ M}\Omega$ R_m : measured insulation resistance value
Effective measurement range	0.50 MΩ - 999.9 MΩ
Accuracy	$R_m < 20 \text{ M}\Omega \pm (5\% \text{ of reading})$ $R_m \geq 20 \text{ M}\Omega \pm (10\% \text{ of reading})$ R_m : measured insulation resistance value In the humidity range of 20% to 70%RH (no condensation permitted), with no disturbance such as swinging of the test leadwires
Hold function	A measured resistance value applied at the end of testing is held during a PASS period.

[判定功能]

判定方法 用窗口比较仪比较基准值和测量电阻值，
然后通知合格或不合格的判定结果
基准值的上限和下限可独立设定

上限基准值设定范围 0.50 MΩ 到 999.9 MΩ(33 段)

下限基准值设定范围 0.50 MΩ 到 999.9 MΩ(33 段)

判断精确度 Rm < 20 MΩ: ± (5% of reading + 3 digit)
Rm ≥ 20 MΩ: ± (10% of reading + 10 digit)
Rm: 测量绝缘电阻值

判断等待时间 0.3 s 固定

[时间]

测试时间 1 s 到 99 s (备有关闭定时器功能)，分辨率: 1 s

精确度 -0 ms, +50 ms

共通项目, 其他功能

[测试功能]

耐压→绝缘 按照交流耐压测试→绝缘电阻测试的顺序执行

绝缘→耐压 按照绝缘电阻测试→交流耐压测试的顺序执行

耐压 耐压测试的单独执行

绝缘 绝缘电阻测试的单独执行

[遥控]

连接器 前面板 5 针 DIN 连接器

可能的控制 测试的开始 / 中止

可连接的选购件 遥控器: RC01C-TOS, RC02C-TOS
高电压测试探针: HP01AC-TOS, HP02AC-TOS

[信号输入输出]

连接器 后面板 14 针无螺丝端子

状态信号输出 输出准备就绪信号、有高压信号、合格信号、
不合格信号以及保护信号
闭合接点信号 (接点额定值: 1 A / 30 Vdc)

电源输出端子 内部电源 (24 V, 100 mA) 输出
共通 (COMMON) 端子与机壳电位等价

联锁 (INTERLOCK) 输入端子 端子间开放时为保护 (PROTECTION) 状态

[特殊测试模式]

双动作 (DOUBLE ACTION) 仅在按完测试停止按钮后约 0.5 秒以内按测试
开始按钮时测试开始

合格保持 (PASS HOLD) 保持合格判定

瞬时 (MOMENTARY) 仅仅在按住测试开始 (START) 按钮的期间进行
测试

不合格方式 (FAIL MODE) 通过遥控的 STOP 信号使不合格或保护状态的
解除无效

普通规格

[环境]

工作环境 室内使用, 高度 2000 m 为止

规格保证范围 温度 5°C 到 35°C
湿度 20% 到 80% RH (无凝结露水状态)

工作范围 温度 0°C 到 40°C
湿度 20% 到 80% RH (无凝结露水状态)

保存范围 温度 -40°C 到 70°C
湿度 90% RH 以下 (无凝结露水状态)

[交流输入]

公称输入额定值 220 Vac 50 Hz/60 Hz

输入电压范围 200 V 到 240 Vac

消耗电力 无负载时 (准备就绪状态) 50 VA 以下

额定负载时 最大 650 VA

[绝缘电阻] 交流输入 (AC INPUT) 一机壳间
30 MΩ 以上 (500 Vdc)

[耐压]

交流输入 (AC INPUT) 一机壳间
1390 Vac, 2 秒内加载, 20 mA 以下

[接地连续性]

25 Aac/0.1 Ω 以下

[外形尺寸 (最大部分)] 320 (330) W × 132 (165) H × 370 (410) D mm

[质量]

约 18 kg

[附属品]

高电压测试导线 TL01C-TOS (约 1.5 m): 1 组 /
电源线: 1 根 / 联锁 (INTERLOCK) 用跳线: 1 根 /
使用说明书: 1 本

[Judgment function]

Judgment method Compares the reference values and measured
leakage current using a window comparator.
The result is returned as a PASS or FAIL.
A reference value can be independently set
for the upper and lower limits.

The value set for the upper reference limit Any of the following 33 values is valid, to a
value ranging from 0.50 MΩ to 999.9 MΩ

The value set for the lower reference limit Any of the following 33 values is valid, to a
value ranging from 0.50 MΩ to 999.9 MΩ

Judgment accuracy Rm < 20 MΩ: ±(5 % of reading + 3 digit)
Rm ≥ 20 MΩ: ±(10 % of reading + 10 digit)
Rm: measured insulation resistance value

Judgment wait time 0.3 s fixed

[Time]

Test time 1 s to 99 s (the TIMER off function provided),
Resolution: 1 s

Timer accuracy -0 ms, +50 ms

Common Items, Other Functions

[Test function]

ACW→IR Conducts tests in the sequence of withstanding
voltage testing and insulation resistance testing.

IR→ACW Conducts tests in the sequence of insulation
resistance testing and withstanding voltage testing.

ACW Conducts withstanding voltage test singly.

IR Conducts insulation resistance test singly.

[Remote control]

Connector 5-pin DIN connector on the front panel

Control available Start/stop of testing

Optional devices connectable Remote control boxes: RC01C-TOS and
RC02C-TOS
High-voltage test probes: HP01AC-TOS
and HP02AC-TOS

[Signal I/O]

Connector 14-pin screw-less terminal on the rear panel

Status signal output Output of a READY signal / H.V ON signal /
PASS signal / FAIL signal / PROTECTION signal
Make-contact signal (contact rating: 1 A/30 Vdc)

Power output terminal Output of internal power (24 V at 100 mA)
The COMMON terminal has a potential
equal to the chassis potential.

INTERLOCK input terminal A PROTECTION state is invoked when
the terminals are open.

[Special test modes]

DOUBLE ACTION Starts testing only when the START
switch is pressed within approx.
0.5 sec. after the STOP switch has been
released.

PASS HOLD Holds PASS judgment.

MOMENTARY Performs testing only while the START
switch is pressed.

FAIL MODE Disables cancellation of the FAIL or PROTECTION
state caused by a remote STOP signal.

General Specifications

[Environment]

Operation environment Indoor use and altitudes up to 2000 m

Specifications assured range Temperature 5°C to 35°C
Humidity 20% to 80% R.H.
(with no dew condensation)

Operating range Temperature 0°C to 40°C
Humidity 20% to 80% R.H.
(with no dew condensation)

Storage range Temperature -40°C to 70°C
Humidity 90% or less R.H.
(with no dew condensation)

[AC input]

Nominal input rating 220 Vac, 50 Hz or 60 Hz

Input voltage range 200 V to 240 Vac

Power consumption At no-load (in READY state): 50 VA or less
At rated load: 650 VA maximum

[Insulation resistance]

AC INPUT to chassis
30 MΩ or more (at 500 Vdc)

[Withstand voltage]

AC INPUT to chassis
20 mA or less when 1390 Vac is applied
for 2 seconds

[Grounding continuity]

25 Aac / 0.1 Ω or less

[Dimensions (largest section)]

320 (330) W × 132 (165) H × 370 (410) D mm

[Weight]

Approx. 18 kg

[Accessories]

High-voltage test leads TL01C-TOS
(approx. 1.5 m): 1 set / Power cord: 1 /
INTERLOCK jumper: 1 / Operation
Manual: 1 copy

OPTIONS FOR ELECTRICAL SAFETY TESTERS

注意 1: 选购件的面板标示文字和使用说明书为英文。
注意 2: 有★符号的产品由日本菊水电子工业株式会社制造。

Note 1: The panel labels and operation manuals of the optional products are in English.
Note 2: The products marked ★ are manufactured by KIKUSUI Electronic Corp. of Japan.

用于安全测试仪器的选购件

Remote control box

■ 远程控制箱

● RC01C-TOS

用于单手操作的 One-handed operation
尺寸 Dimensions: 200W × 70H × 39Dmm
※附属电缆长度 Accessory cable length: 1.5m



● RC02C-TOS

用于两手操作的 Double-handed operation
尺寸 Dimensions: 330W × 70H × 39Dmm
※附属电缆长度 Accessory cable length: 1.5m



High-voltage test Lead

■ 高电压测试引线

● TL01C-TOS

电缆长度 Cable length: 1.5m
最大使用电压 Maximum operating voltage: 5kV



● TL02C-TOS

电缆长度 Cable length: 3m
最大使用电压 Maximum operating voltage: 5kV



Warning light unit

■ 警告灯单元

● PL02-TOS ★

根据 TOS8830C 背面的 AC/DC24V 信号进行 ON / OFF 控制。
The light is turned on and off by the 24-V AC/DC signal fed from the rear side of TOS8830C.



High-voltage test probe (pistol type)

■ 高电压测试探针 (手枪型)

● HP01AC-TOS

电缆长度 Cable length: 1.8 m
最大使用电压 Maximum operating voltage:
4 kV DC 5 kV

● HP02AC-TOS

电缆长度 Cable length: 3.5 m
最大使用电压 Maximum operating voltage:
4 kV DC 5 kV



(相关产品介绍) 菊水电子工业 TOS 系列
(Information about Related Products) KIKUSUI Electronic Corp. TOS Series

高质量品牌 "KIKUSUI" 的安全测试仪器 !!
Electrical safety tester developed under the quality brand of KIKUSUI !!

Withstanding Voltage & Insulation Tester
耐压 / 绝缘电阻测试仪
TOS9200 Series



Earth Continuity Tester
地线导通测试仪
TOS6200 Series



Withstanding Voltage & Insulation Tester
耐压 / 绝缘电阻测试仪
TOS8870A



Insulation Tester
绝缘电阻测试仪
TOS7200



Withstanding Voltage Tester
耐压测试仪
TOS5000(A) Series



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●销售代理店 Distributor



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