GOM-804/805   D.C. Milli-Ohm Meter

New Product Announcement

GW Instek launches a new series of D.C. milliohm meter ─ GOM-804/805, which abundantly feature 3.5-inch TFT display, maximum 50,000 counts measurement display, the rapid sampling rate of 60 readings per second, optimum 0.05% measurement precision, four wire measurement method as well as the temperature measurement and temperature compensation measurement function to meet the requirement of low resistance measurement application. The GOM-805 also includes various drive modes and Dry circuit for contact resistance measurement applications. More features, including 20 sets of panel setting memory and many external control interface such as RS-232C, USB, Handler/Scan/EXT IO or GPIB (option), greatly elevate GOM-804/805 milliohm meter's convenience on practical applications.

GOM-804/805 adopt 3.5-inch color LCD to enhance the clarity of measurement results and to provide display for related setting criteria that tremendously brings up the completeness of test information. Additionally, GOM-804/805, with the optimum 0.05% precision, augment the measurement speed to 60 sampling rate per second and maintain the display digits of five instead of four despite of different speed selections. Furthermore, the independent functionality keys and direction keys together increase the operational convenience which allows users to complete their measurement tasks with intuitive convenience and speed.

GOM-805 provides Dry circuit and various drive modes (DC+, DC-, Pulsed, PWM) for measurement applications on different materials. The pulsed current output mode is suitable for interacting conductors of different materials and this output mode is to reduce the thermal EMF influence, which is caused by electric potential difference generated from different conductors acting on different temperatures while conducting low resistance measurements. The DC+ and DC- output modes are best for the measurement requirements of inductive components. The PWM output mode, ideal for changing temperature sensitive materials, can avoid resistance value variation which is due to over load happened on current measurement for a long period of time. When either the DC+, DC- or Pulsed drive is active; the Dry circuit can be applied simultaneously. Dry circuit can limit the applied voltage under the open circuit voltage of 20mV to avoid over voltage occurred on the both ends of components. The over voltage will damage the oxide coating and the thin layer of contact surface, as a result, the validity of measurement will then be ruined. For instance, contact resistance of connector measurement is one of the applications.

With respect to connecting the external control, GOM-804/805 provide a D-sub 25-pin combined interface to execute, according to the functionalities, Handler, Scan or EXT IO for respectively connecting to a sorting machine; connecting to an external on-off switch, and directly conducting external trigger control. For remote control and measurement result retrieval requirements, GOM-804/805 also provide various interface selections such as RS-232C, USB, and GPIB (GOM-804(option)/GOM-805(standard)) interface. Furthermore, the control commands are compatible to that of GOM-802 that saves time in adjusting programs while

switching from the old model to the new model.

To sum up, GOM-804 evolves from GOM-802 platform with more advanced functionalities and specifications, including display digits, measurement speed and standard interface (RS-232C/USB). With all the capabilities of GOM-804, GOM-805 augments itself with new measurement abilities (Dry circuit and various drive modes) to meet the requirements of broader low resistance measurement applications.

Totally replacing the existing models

In terms of the basic functionalities and specifications, GOM-804/805 can absolutely replace the existing model—GOM-802. All GOM-802 functionalities can be found from GOM-804/805, including resistance measurement range, 1A test current (maximum), four wire measurement method, temperature probe (option, accessory model: PT-100) for temperature measurement and temperature compensation measurement, etc. The programming commands are also compatible to that of GOM-802. To simply put it, the brand new GOM-804/805 not only provide better display interface, fast measurement (60 readings per second), but also collocate with standard communications interface (RS-232C/USB device) to facilitate users in accomplishing measurement tasks rapidly. On top of that, model switching will not be a problem.

Faster measurement without sacrificing resolution

GOM-804/805 has two measurement speed selections, which are Fast reaching 60 readings per second, and Slow 10 readings per second. A major departure from the past, users, in the past, had to juggle between speed and display resolution. GOM-804/805 will not affect resolution despite of any speed selections and will maintain the highest display digits. In other words, reading resolution will not be changed by changing speed and the display digits remain the same.

Dry circuit test for GOM-805 only

Dry circuit is to limit test voltage and current to certain levels which will not cause contact points to produce physically or electrically changed circuit and its most frequently used application is contact resistance of connector measurement. Based upon MIL-STD-1344 method 3002-1 low signal level contact resistance, tests must be applied under the maximum open circuit voltage of 20mV (or lower), and short circuit current of 100mA (or lower) to avoid over voltage for the both ends of components. The over voltage will damage the oxide coating and the thin layer of contact surface, as a result, the validity of measurement will then be ruined. GOM-805 provides three levels (500mΩ:100mA/5Ω:10mA/50Ω:1mA) to limit open circuit voltage at 20mV to execute Dry circuit tests.
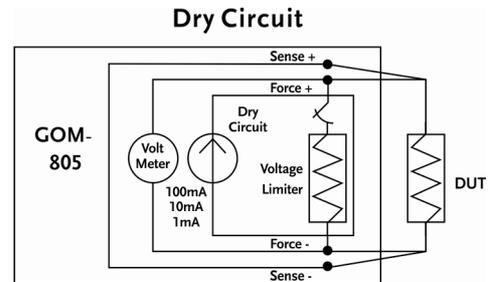
Various drive modes for GOM-805 only

GOM-805 provides various current output drive modes to satisfy diversified and accurate low resistance measurement applications. For instance, for interacting conductors of different materials, the pulsed current output mode can be applied to reduce the thermal EMF influence, which is caused by different conductors acting on different temperatures. The PWM output mode, ideal for changing temperature sensitive materials, can avoid resistance value variation which is due to over load on large current measurement in a long period of time. The DC+ and DC- output modes are best for the measurement requirements of inductive components.
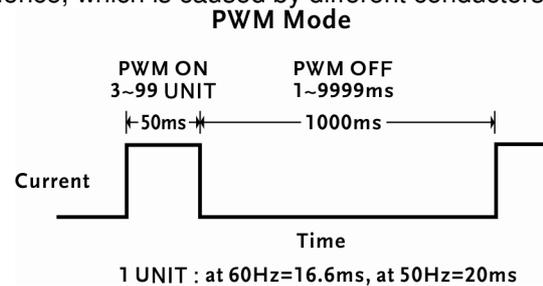
Standard interface for control and communications

With respect to connecting the external control, GOM-804/805 provide a D-sub 25-pin composite interface to execute, according to the functionalities, Handler, Scan or EXT IO for connecting to a sorting machine; connecting to an external on-off switch, and directly conducting external trigger control respectively. For remote control and measurement result retrieval requirements, GOM-804/805 also provide various interface selections such as RS-232C, USB, and GPIB (GOM-804(option)/GOM-805(standard) interface.

Command compatiability

The commands of GOM-804/805 are compatible to that of GOM-802 that allows users to switch equipment with simple settings. There is no cost in adjusting existing programs and production delay will not be happening while switching from the old model to the new model.

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FEATURES

- 50,000 counts
- 3.5" (320 x 240) TFT LCD display
- High accuracy of 0.05% precision
- 1Amp test current, 1µΩ resolution
- Fast measurement of 60 readings per second
- Four wire resistance measurement
- Temperature compensation measurement function
- Delayed measurement
- 20 sets of panel setting memory
- Dry circuit (GOM-805 only)
- Drive modes: DC+/DC-, Pulsed, PWM, Zero (GOM-805 only)
- Interface: USB device, RS-232C, Handler/Scan/EXT I/O, and GPIB (option)

3.5″ large TFT LCD provides the optimum setting parameters and measurement result observation

Independent functional keys and direction keys provide more intuitive and fast operation
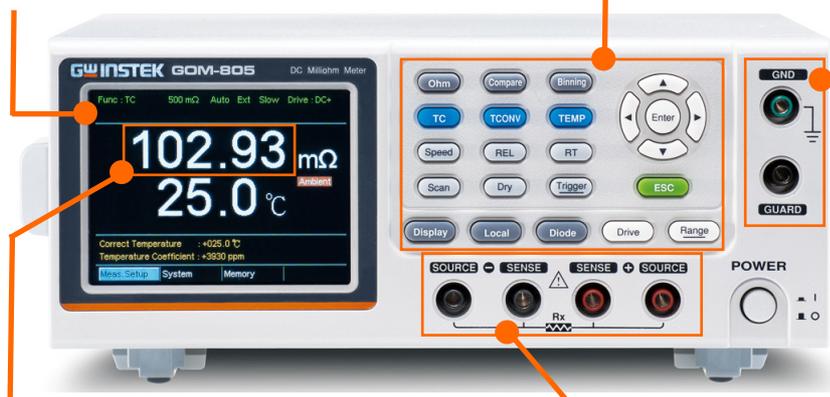
GND / Guard terminals are ideal for grounding to eliminate measurement noise

Reading display resolution will not be affected by speed selections

Four wire measurement terminal

GPIB port (GOM-804 option)

RS-232C port (standard)

Handler / Scan / EXT I/O Combined port

General power input AC 100-240V

Temperature probe port

USB port (standard)

Comparison ~ GOM-804 vs GOM-802

Specifications highlighted in red represent better performance

"X" represents "function not available"

	GW GOM-804	GW GOM-802
DISPLAY	50,000 counts	30,000 counts
RESISTANCE		
Range/Test current/Accu. [Note1]	50mΩ ~ 5MΩ in 9ranges	30mΩ ~ 3MΩ in 9 ranges
	50mΩ/ 1A/ ±(0.1 %+0.02 %)	30mΩ/ 1A/ ±(0.1 %+0.02 %)
	500mΩ/100mA/ ±(0.05%+0.02 %)	300mΩ/100mA/ ±(0.05%+0.02 %)
	5Ω/100mA/ ±(0.05%+0.02 %)	3Ω/100mA/ ±(0.05%+0.01 %)
	50Ω/ 10mA/ ±(0.05%+0.02%)	30Ω/ 10mA/ ±(0.05%+0.007%)
	500Ω/ 1mA/ ±(0.05%+0.008%)	300Ω/ 1mA/ ±(0.05%+0.007%)
	5kΩ/100uA/ ±(0.05%+0.008%)	3kΩ/100uA/ ±(0.05%+0.007%)
	50kΩ/100uA/ ±(0.05%+0.008%)	30kΩ/100uA/ ±(0.05%+0.007%)
	500kΩ/ 10uA/ ±(0.05%+0.008%)	300kΩ/ 10uA/ ±(0.05%+0.007%)
	5MΩ/ 1uA/ ±(0.20%+0.008%)	3MΩ/ 1uA/ ±(0.05%+0.007%)
Test Current (max.)	1A	1A
Best resolution	1µΩ	1µΩ
Measuring Method	Four-wire	Four-wire
TEMPERATURE		
Range	-50˚C ~ 399.9˚C	-50˚C ~ 100˚C
Accuracy	-10˚C ~ 40˚C : 0.3% + 0.5˚C Other : 0.3% + 1.0˚C	-10˚C ~ 40˚C : 0.3% + 0.5˚C Other : 0.3% + 1.0˚C
Resolution	0.1˚C	0.1˚C
MEASURING RATE[Note2]		
Slow	10 measuring / s @ 50,000 counts	7 measuring / s @ 30,000 counts
Fast	60 measuring / s @ 50,000 counts	30 measuring / s @ 3,000 counts
OTHER		
Trigger	INT、MAN、EXT	INT、MAN
Math	ABS, REL, %, TC	ABS, REL, %, TC
Average	2 ~10 times	X
Measuring Delay	Yes	X
Hi / Lo	Yes	Yes
Go / No-Go	Yes	Yes
TC for Transformer	Yes	Yes
Diode	Yes	X
Continuity Beeper	Yes	X
MEMORY (panel setting)	20 sets	20 sets
INTERFACE[note3]		
Handler / Scan / EXT I/O	Standard (D-sub 25-pin)	Standard
USB Device	Standard	X
RS-232C	Standard	Option*
GPIB	Option	Option*
DRY CIRCUIT	X	X
DRIVE MODE	X	X

* GOM-802 option is two-in-one interface card (RS-232C+GPIB)

[Note 1] accuracy = ±(% of reading + % of range)

[Note 2] GOM-804/805 reading display resolution will not be affected by different speed selections

[Note 3] GOM-804/805 program commands cover the existing commands of GOM-802

Comparison ~ GOM-805 vs Chroma16502

Specifications highlighted in red represent better performance

"X" represents "function not available"

	GW GOM-805	Chroma 16502
DISPLAY	50,000 counts	20,000 counts
RESISTANCE		
Range/Test current/Accu. [Note1]	50mΩ ~ 5MΩ in 9 ranges	20mΩ ~ 2MΩ in 9 range
	50mΩ/ 1A/ ±(0.1 %+0.02 %)	20mΩ/ 1A/ ±(0.1 %+0.03%)
	500mΩ/100mA/ ±(0.05%+0.02 %)	200mΩ/100mA/ ±(0.05%+0.03%)
	5Ω/100mA/ ±(0.05%+0.02 %)	2Ω/ 10mA/ ±(0.05%+0.03%)
	50Ω/ 10mA/ ±(0.05%+0.02%)	20Ω/ 1mA/ ±(0.05%+0.03%)
	500Ω/ 1mA/ ±(0.05%+0.008%)	200Ω/ 1mA/ ±(0.05%+0.02%)
	5kΩ/100uA/ ±(0.05%+0.008%)	2kΩ/ 1mA/ ±(0.05%+0.01%)
	50kΩ/100uA/ ±(0.05%+0.008%)	20kΩ/100uA/ ±(0.1 %+0.01%)
	500kΩ/ 10uA/ ±(0.05%+0.008%)	200kΩ/ 10uA/ ±(0.2 %+0.01%)
	5MΩ/ 1uA/ ±(0.20%+0.008%)	2MΩ/ 1uA/ ±(0.3 %+0.01%)
Test Current (max.)	1A	1A
Best resolution	1μΩ	1μΩ
Measuring Method	Four-wire	Four-wire
TEMPERATURE		
Range	-50˚C ~ 399.9˚C	-10˚C ~ 99.9˚C
Accuracy	-10˚C ~ 40˚C : 0.3% + 0.5˚C Other : 0.3% + 1.0˚C	-10℃~-39.9℃:0.3%±0.5℃ 40℃~99.9℃:0.3%±1.0℃
Resolution	0.1˚C	0.1˚C
MEASURING RATE[Note2]		
Slow	10 measuring / s	1.6 measuring / s
Medium		6 measuring / s
Fast	60 measuring / s	15 measuring / s
OTHER		
Trigger	INT、MAN、EXT	INT、MAN、EXT、BUS
Math	ABS, REL, %, TC	ABS,REL,%, TC(optional)
Average	2 ~10 times	1 ~ 10 times
Measuring Delay	Yes	Yes
Hi / Lo	Yes	Yes
Go / No-Go	Yes	Yes
TC for Transformer	Yes (standard)	Yes (standard)
Diode	Yes	X
Continuity Beeper	Yes	Yes
MEMORY (panel setting)	20 sets	8 sets
INTERFAC		
Handler / Scan / EXT I/O	Standard (D-sub 25-pin)	Option (D-sub 25-pin)
USB Device	Standard	X
RS-232C	Standard	Standard
GPIB	Option	Option
DRY CIRCUIT	Open circuit less than 20mV; Only for 500mΩ, 5Ω, 50Ω ranges	Open circuit less than 20mV; Only for 200mΩ, 2Ω, 20Ω ranges
DRIVE MODE	DC+, DC-, Pulsed, PWM, Zero	DC+, DC-, Pulsed+, Pulsed-, Pulsed+/-, Stand by

[Note 1] accuracy = ±(% of reading + % of range)

[Note 2] GOM-804/805 reading display resolution will not be affected by different speed selections

Comparison ~ GOM-805 vs RM3544

Specifications highlighted in red represent better performance

"X" represents "function not available"

	GW GOM-805	Hioki RM3544
DISPLAY	50,000 counts	35,000 counts
RESISTANCE		
Range/Test current/Accu. [Note1]	50mΩ ~ 5MΩ in 9 ranges	35mΩ ~ 3.5MΩ in 9 ranges
	50mΩ/ 1A/ ±(0.1 %+0.02 %)	35mΩ/300mA/ ±(0.030%+0.07 %)
	500mΩ/100mA/ ±(0.05%+0.02 %)	350mΩ/300mA/ ±(0.025%+0.014%)
	5Ω/100mA/ ±(0.05%+0.02 %)	3.5Ω/ 30mA/ ±(0.025%+0.014%)
	50Ω/ 10mA/ ±(0.05%+0.02%)	35Ω/ 10mA/ ±(0.020%+0.007%)
	500Ω/ 1mA/ ±(0.05%+0.008%)	350Ω/ 1mA/ ±(0.020%+0.007%)
	5kΩ/100uA/ ±(0.05%+0.008%)	3.5kΩ/ 1mA/ ±(0.020%+0.007%)
	50kΩ/100uA/ ±(0.05%+0.008%)	35kΩ/100uA/ ±(0.020%+0.007%)
	500kΩ/ 10uA/ ±(0.05%+0.008%)	350kΩ/ 5uA/ ±(0.040%+0.007%)
	5MΩ/ 1uA/ ±(0.20%+0.008%)	3.5MΩ/500nA/ ±(0.200%+0.007%)
Test Current (max.)	1A	300mA
Best resolution	1μΩ	1μΩ
Measuring Method	Four-wire	Four-wire
TEMPERATURE		
Range	-50˚C ~ 399.9˚C	-10˚C ~ 99.9˚C
Accuracy	-10˚C ~ 40˚C : 0.3% + 0.5˚C Other : 0.3% + 1.0˚C	-10℃ ~ -59.9℃ : ±0.55℃ 60℃ ~ 99.9℃ : ±0.92℃
Resolution	0.1˚C	0.2˚C
MEASURING RATE[Note2]		
Slow	10 measuring / s	2 measuring / s
Medium		10 measuring / s
Fast	60 measuring / s	55 measuring / s
OTHER		
Trigger	INT、MAN、EXT	INT、EXT
Math	ABS, REL, %, TC	ABS,%,TC
Average	2 ~10 times	2 ~ 100 times
Measuring Delay	Yes	Yes
Hi / Lo	Yes	Yes
Go / No-Go	Yes	Yes
TC for Transformer	Yes	Yes
Diode	Yes	X
Continuity Beeper	Yes	Yes
MEMORY (panel setting)	20 sets	10 sets
INTERFACE		
Handler / Scan / EXT I/O	Standard (D-sub 25-pin)	Option (D-sub 25-pin)
USB Device	Standard	Option
RS-232C	Standard	Option
GPIB	Option	X
DRY CIRCUIT	Open circuit less than 20mV; Only for 500mΩ, 5Ω, 50Ω ranges	X
DRIVE MODE	DC+, DC-, Pulsed, PWM, Zero	X

[Note 1] accuracy = ±(% of reading + % of range)

[Note 2] GOM-804/805 reading display resolution will not be affected by different speed selections

Applications Field

- Inductive components (motor, solenoid, wound core, transformer, wire harness)

- Electric cable, metallic contact (contact points, wire harness, relay contact points, switch, wire, soldered points)

- Thermal sensitive component (fuse, resistor, heater)

- Conductive materials (conductive rubber, conductive coating)

Target Markets and Associated Features

Manufacturing Engineering

- 50,000 counts and 0.05% basic accuracy not only meet the requirements of accuracy and precision for the manufacturing verification, but also satisfy the quality requirement of manufacturing processes.

- Various measurement items and auxiliary functions satisfy the application measurement requirements for manufacturing various products.

- Selectable measurement speed/comparative functions effectively increase verification and testing efficiency for manufacturing processes.

- Diversified standard/optional interface — RS-232C / USB device / optional GPIB (GOM-804 only) meet the requirements of automation control for manufacturing processes, and collect as well as manage verification and testing results to facilitate products analysis and improvement.

Quality Assurance Verification

- 50,000 counts and 0.05% basic accuracy satisfy the requirements of accuracy and precision for quality assurance verification.

- Various measurement items and auxiliary functions meet the measurement requirements for quality assurance verification.

- Diversified standard/optional interface — RS-232C / USB device/ optional GPIB (for GOM-804) provide long monitoring experimental data. PC collects as well as manages verification and testing results to facilitate products analysis and improvement.

System Integration

- Fastest speed of 60 readings per second meets fast and mass data retrieval requirements.

- Various measurement items (resistance / temperature / temperature compensation…etc) and auxiliary functions meet the measurement requirements for different application integration.

- Diversified standard/optional interface — RS-232C / USB device / optional GPIB (for GOM-804) facilitate system integration.

Key Dates for Product Announcement

1. Distributor Announcement & Demo Unit Order and Shipping (15th of September)
2. Global Market Announcement (15th of October)

Service Policy

1. **1 year warranty**

2. **Service Support**

   The service instructions in the Service Manual will help distributors repair defective units promptly. Should the board replacement is necessary to fix the defective unit, the board swapping service support is provided by Good Will Instrument to facilitate the repair jobs done at the distributor's site.

3. GW Instek continuingly provides the after-sales support through its website. The most up-to-date version of service manual and Marcom material of GOM-804/805 will be posted on the distributor zone of GW Instek Website at http://www.gwinstek.com

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SPECIFICATIONS

General

⚠ NOTE	• Specifications are ensured only for GOM-804/805 at least 30 minute of warm-up time and Operating Temperature Specification: 18~28°C
Display	3.5' (320 x 240) TFT LCD
Memory	20 sets for panel setting
Power Source	AC 100 - 240 V, 50/60Hz
Comsumption	25VA (max.)
Dimension	223(W) x 102(H) x 283(D) mm
Weight	Approx. 4kg(max.)

Specifications

MODEL	GOM-804	GOM-805
DISPLAY		
	50,000 counts	
SAMPLING RATE		
Slow	10 readings / s	
Fast	60 readings / s	
RESISTANCE MEASUREMENT		
Range / Test current (fixed)		

50mΩ / 1A	500mΩ / 100mA	5Ω / 100mA
50Ω / 10mA	500Ω / 1mA	5kΩ / 100µA
50kΩ / 100µA	500kΩ / 10µA	5MΩ / 1µA

Accuracy	50mΩ : ± (0.1% of reading + 0.02% of range)	
	500mΩ ~ 50Ω : ± (0.05% of reading + 0.02% of range)	
	500Ω ~ 500kΩ : ± (0.05% of reading + 0.008% of range)	
	5MΩ : ± (0.2% of reading + 0.008% of range)	
Resolution	1µΩ, 10µΩ, 100µΩ, 1mΩ, 10mΩ, 100mΩ, 1Ω, 10Ω, 100Ω	
TEMPERATURE		
Range	-50°C ~399.9°C	
Accuracy	-10°C ~40°C : 0.3% ± 0.5°C ; Other : 0.3% ± 1.0°C	
Resolution	0.1°C	
DRY CIRCUIT		
	-----	Open circuit less than 20mV; For 500mΩ, 5Ω, 50Ω range only
DRIVE MODE		
DC+ / DC-	-----	Yes
Pulsed	-----	Yes
PWM	-----	Yes
Zero	-----	Yes
OTHER FUNCTIONS		
	Trigger – Internal, Manual, External、Math – ABS, REL, %, TC、Hi / Lo	
	Average 2 ~ 10 times、Measured delay、Go / No-Go、TC for Transformer	
	Diode、Continuity beeper、Sorting (only for GOM-805)	
INTERFACE		
USB	Standard	Standard
RS-232C	Standard	Standard
HANDLER/SCAN/EXT I/O	Standard	Standard
GPIB	Option	Standard

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Product appearance

Front panel

Rear panel *

* GPIB is standard for GOM-805. GPIB is option for GOM-804 and must be installed at factory before shipment.

ORDERING INFORMATION

GOM-805   D.C. Milli-Ohm meter with Handler / RS-232C / USB Device / GPIB

GOM-804 with GPIB   D.C. Milli-Ohm meter with Handler / RS-232C / USB Device / opt.01 GPIB)

GOM-804   D.C. Milli-ohm meter with Handler / RS-232C / USB Device

Accessories

Quick Start Guide x 1, Power cord x 1, Test lead GTL-308 x 1,
CD x1(complete user manual)

Option

Opt. 1 GPIB card (only for GOM-804 and must be installed at factory before shipment.)

Optional Accessories

PT-100   Platinum Temperature Probe
GTL-232   RS-232C cable 9-pin, F-F type, approx. 2000mm
GTL-248   GPIB cable approx. 2000mm
GTL-251   GPIB-USB-HS (High Speed) adaptor

Should you have any questions about the GOM-804/805 announcement, please don't hesitate to contact us.

Sincerely yours,

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