

3G4000

3G (HSPA) WIRELESS ALARM
COMMUNICATOR

INSTALLATION GUIDE V4.0



INSTALLATION GUIDE V4.0

For installation manual visit www.dsc.com

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WARNING: DSC recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this SOFTWARE PRODUCT to fail to perform as expected.

IMPORTANT

The equipment is fixed, wall-mounted and shall be installed in the position specified in these instructions. The equipment enclosure must be fully assembled and closed, with all the necessary screws/tabs and secured to a wall before operation. Internal wiring must be routed in a manner that prevents:

- Excessive strain on wire and on terminal connections
- Loosening of terminal; connections
- Damage of conductor insulation

WARNING: Never install this equipment during a lightning storm!

Instruct the end-user to:

- Not attempt to service this product. Opening or removing covers may expose the user to dangerous voltages or other risks. Any servicing shall be referred to trained service persons only.
- Use authorized accessories only with this equipment.

Do not dispose of the battery in fire or water. Disposing of the battery in a fire will cause rupture and explosion.

Do not dispose of the waste battery as unsorted municipal waste. Consult your local regulations and/or laws regarding recycling with regard to this NiMH battery pack. Doing so will help protect the environment. Some of the materials that are found within the battery could become toxic if not disposed of properly and may affect the environment.

Introduction

The 3G4000 is a wireless communicator that sends alarm system information to a Sur-Gard SG-System I-IP, II, III, IV or 5 Receiver through a 3G (HSPA) or 2G (GPRS) wireless network. This wireless communicator can be used with UL/ULC Listed compatible control units, as indicated in the manufacturer's installation instructions.

NOTE: The 3G4000 is designed to work with the Contact ID communication format as described in SIA DC-05 Standard. Before completing the field installation of the alarm monitoring system, please ensure communication with the supervising central station is successful by sending several events and getting confirmation that they have been received.

Features

- Compatible with 4-digit or 10-digit Contact ID communication format as described in SIA DC-05 Standard. Example of suitable compatible alarm panels: DSC Models PC1864, PC1832, PC1616, PC4020.
- Simulates landline
- Switches automatically to the 3G (HSPA) or 2G (GPRS) network in the event of landline trouble (e.g., line down)
- Phone Number Call Direction
- SMS Command and Control
- Bi-Color Wireless Signal Indicator
- Two programmable outputs
- Case and Wall Tamper
- Landline overvoltage protection
- Dual-band UMTS/HSPA; Quad-Band GSM/EDGE Radio
- Two programmable inputs
- 3G (HSPA)/2G (GPRS) / Internet communication with Sur-Gard SG-System I-IP / II / III / IV / 5
- Panel transmission monitoring for up to four phone numbers
- Remote firmware upgrade
- DLS support for status, firmware updates
- Advanced Carrier Selection
- Remote Debug Enable
- Easy enrolment with C24 Communications via VRU, web or mobile interface

Technical Specifications

The input voltage to the 3G4000 can be drawn from the UL/ULC Listed control panel or provided by an external UL/ULC Listed power supply (with battery back-up) rated for the application (external power-limited source).

NOTES: The power supply must be Class 2, Power Limited. A suitable power adaptor is model DSC ADP1320-NAU (for USA) and model DSC ADP1320-NA (for Canada).

For UL/ULC listed installations the input rating for the external power adapter is 120VAC/60Hz/0.4A.

Ratings

Power Supply Ratings

Input Voltage (Nominal): 9-14Vdc (use separately listed control panel or power supply) or 13.8Vdc (use DSC ADP1320-NAX power adapter)

Input Current: 500mA (9-14Vdc) or 700mA (13.8Vdc)

Current Consumption

Average: 40mA*

Peak (no battery): 180mA*

Peak (with battery): 350mA*

* Plus any current drawn from the 3G4000 + terminal

Battery: NiMH, rated 7.2V, 2.2Ah

Battery charging voltage (maximum): 9.1Vdc

Battery charging current: 60mA

NOTE: Battery must be replaced every 3-5 years.

Operating frequency: 850/1900MHz

Antenna gain: 2.0dBi

Environmental Specifications

Operating temperature: 0°C-49°C (32°F-120°F)

Humidity: 93%RH Maximum (non-condensing)

Mechanical Specifications

Dimensions (plastic enclosure, painted): 125 mm (W) × 220mm (H) × 31mm (D) / 4.9" × 8.7" × 1.2"

Weight (without battery): 400g / 1.2oz

Simulated Telco Loop specifications (TIP/RING)

On-Hook Voltage: 12Vdc

Off-Hook Voltage (maximum): 22Vdc

Loop Current 25mA

Loop Resistance 600 Ohms

This equipment (3G4000) is fixed and shall be installed by Service Persons only (Service Person is defined as a person having the appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed in performing a task, and of measures available to minimize the risks to that person or other persons). It shall be installed and used within an environment that provides the pollution degree max 2, over voltages category II, in non-hazardous, indoor locations only. This manual shall be used with the Installation Manual of the relevant alarm control panel. All instructions specified within that manual must be observed.

Installing the 3G4000

C24 Communications Enrolment

The 3G4000 requires enrolment with C24 Communications to operate. For more information, please visit www.connect24.com, contact C24 Communications customer service at 1-888-251-7458 (US) / 1-888-955-5583 (Canada) or contact the central station to inquire if they are a C24 Communications Master Reseller.

NOTES: Enrollment with C24 Communications should be performed before turning on the 3G4000 unit. Before inserting or removing the SIM card, please ensure the unit is turned off.

STEP 1 - Initialize the 3G4000 with C24 Communications

The 3G4000 can be initialized with C24 Communications by:

web - www.connect24.com

mobile - m.connect24.com

To complete enrolment, a C24 profile, installer ID/PIN (or web credentials) and the 20-digit SIM number are required.

NOTE: The SIM activation process with the cellular carrier typically takes between five and ten minutes to complete.

STEP 2 - Determine the Best Signal Location

1. Remove the front cover by inserting a screwdriver into each of the slots at the bottom of the enclosure and pushing down.
2. Apply power (DC and/or battery). The 3G4000 is now in placement test mode.

STEP 2a – SIM card is activated.

The red LED will be on solid, the blue LED will be off and the signal strength LEDs will display the average signal strength. In this state, the 3G4000 is registered to the cellular network.

If the signal strength is too low (bottom signal LED off or flashing), the 3G4000 will move to **Step 3** and scan for carriers with sufficient signal strength and attach to the carrier. If the 3G4000 is connected to a carrier with sufficient signal strength (minimum of bottom signal strength LED on solid), it will move to **Step 4**.

Step 2b – SIM card is not activated

The red LED will flash, the blue LED will be off and the signal strength LEDs will display the average signal strength.

In this state, the 3G4000 is unable to register to the cellular network because it is inactive. The signal strength indicated is from **any** nearby cell tower (including cellular towers belonging to non-roaming partners) and does **not** necessarily reflect the signal strength of the intended network. The 3G4000 will remain in this state until the SIM is activated. Once the SIM is activated, the 3G4000 will move to **Step 2a**.

Step 3 – Carrier Scanning due to insufficient signal strength

The 3G4000 will scan the surrounding cellular network and connect to the carrier to provide a signal strength of at least 7 CSQ. When this action is being performed, all four LEDs will activate to show a scanning sequence. The LEDs will cycle from top to bottom and then bottom to top. This cycle will continue until the 3G4000 is connected to a carrier with a signal strength above 7 CSQ (minimum of bottom signal strength LED on solid). This process can take several minutes.

Carrier Scanning, sequence repeats until complete.

Once this is completed, the 3G4000 will move to **Step 4**.

Step 4 - Acquire C24 Communications programming

The red LED will be on solid and the blue LED will flash. The flashing of the blue LED indicates that the 3G4000 has requested programming from C24 Communications and is waiting for a response.

Once remote programming is completed, the blue LED will switch to solid and the 3G4000 will move to **Step 5**.

Step 5 – Receiver Initialization

The red LED and the blue LED are both solid and the signal strength LEDs are off.

When the 3G4000 sends a request to communicate with the central station, the top signal strength LED will begin flashing.

When the central station communicates back with the 3G4000, the top signal strength LED will turn on solid.

When the 3G4000 sends a request to communicate with the next central station, the bottom signal strength LED will begin flashing

and turn on solid when it receives a communication back from the central station.

If at least one of the central stations did not respond back to the communicator (or is not programmed), the signal strength LED corresponding to that central station will turn off. Once the initialization sequence is complete, the 3G4000 will move on to steady state operation.

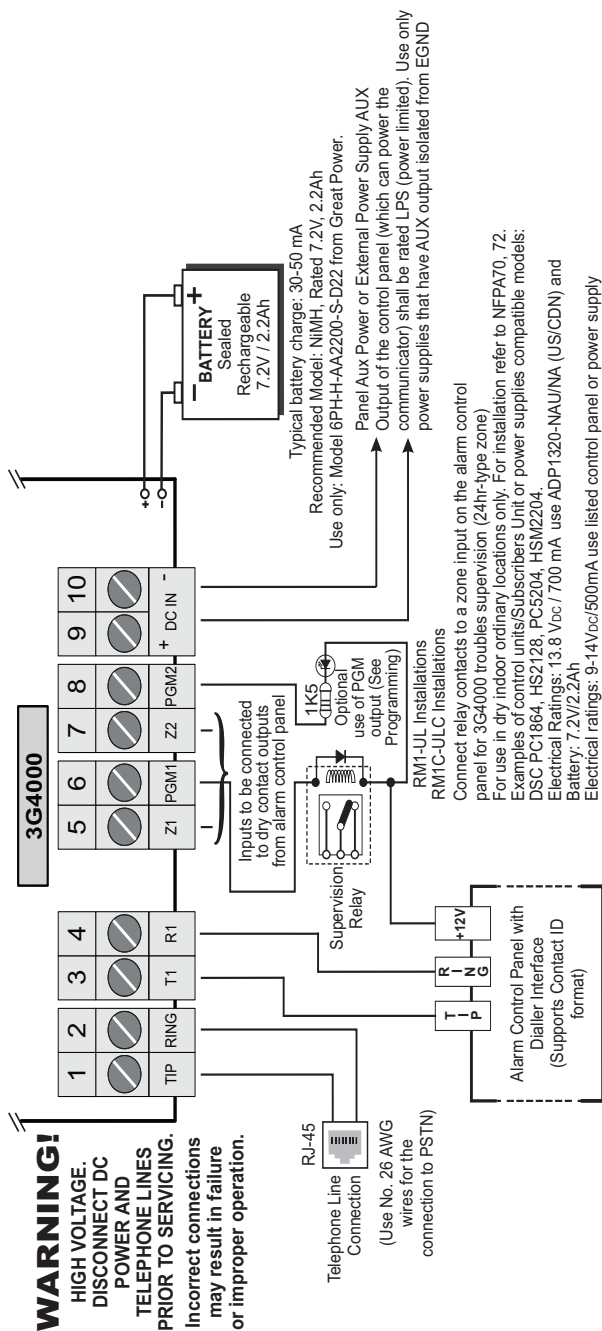
STEP 6 - Mount the 3G4000

NOTE: If using a 3G4000 Trim plate, snap the 3G4000 back plate onto the trim plate before mounting to wall. If flush mounting or using with an extension antenna, remove the provided break away from the trim plate prior to mounting.

1. Using the mounting holes on the 3G4000RF backplate, mark the four screw locations. Drill the anchor screw holes. **NOTE: Check for cable conduits and water pipes before drilling.**
2. Inspect the mounting surface. Ensure that the surface is flat and will hold the wall tamper closed when mounted. Using anchor screws (not provided), mount the cabinet to the wall.
3. Run the cables through the cable entry [13] or through the cabinet cable run knockout [15].
4. Complete the connections on the terminal blocks [11].
5. Reattach the front cover [1] securely to the cabinet.

3G4000 Wiring Diagram

Figure 1 - Wiring Diagram



WARNING: Incorrect connections may result in PTC failure or improper operation. Inspect wiring and ensure connections are correct before turning on.

All circuits are classified for UL installations as Power Limited/Class II Power Limited. Do not route any wiring over circuit boards. Maintain at least 1" (25.4mm) separation. A minimum 1/4" (6.4mm) separation must be maintained at all points between Power Limited wiring and all other Non-Power Limited wiring. Route wires as indicated in the diagram.

NOTE: For ULC Commercial Burglary Installation requirements please refer to Figure 3 and to the ULC Installation Guide P/N 29002157.

For UL Installations, the system shall be installed in accordance with chapter 2 of the ANSI/NFPA 72 and ANSI/NFPA 70. Recommended locations and wiring methods shall be in accordance with the National Electrical Code, ANSI/NFPA 70, the Standard for Installation and Classification of Burglar and Holdup Alarm Systems, UL 681, and the Standard for Central-Station Alarm Services, UL 827.

For UL C Installations, the recommended locations and wiring methods shall be in accordance with CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations; CAN/ULC-S302, Installation and Classification of Burglar Alarm Systems for Financial and Commercial Premises, Safes and Vaults; and CAN/ULC-S301, Standard for Central and Monitoring Station Burglar Alarm Systems and the Standard for the Installation of Residential Fire Warning Systems, CAN/ULC-S540. Do not install the equipment in places where the signal strength does not meet the minimum recommended signal strength level. Do not run zone inputs and T1/R1 wiring along AC wires or other circuits with high frequency signals in order to reduce possibility of interference and false alarms.

MODIFICATION STATEMENT

Digital Security Controls has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

Digital Security Controls n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peuvent annuler le droit d'utilisation de l'appareil par l'utilisateur.

INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules and Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

WIRELESS NOTICE

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body.

Antenna gain must be below:

Frequency band	3G4000
GSM 850 / FDD V	6.21 dBi
PCS 1900 / FDD II	3.76 dBi

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la IC pour un environnement non contrôlé. L'antenne doit être installée de façon à garder une distance minimale de 20 centimètres entre la source de rayonnements et votre corps.

Gain de l'antenne doit être ci-dessous:

Bande de fréquence	3G4000
GSM 850 / FDD V	6.21 dBi
PCS 1900 / FDD II	3.76 dBi

L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur.

FCC CLASS B DIGITAL DEVICE NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help
- CAN ICES-3 (B) / NMB-3 (B)

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de classe B est conforme à la norme canadienne ICES-003.

FCC ID:F53143G4000
US:F53M000B3G4000
IC: 160A-3G4000

Telephone Connection Requirements

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and

requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

Ringer Equivalence Number (REN)

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call.

In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local Telephone Company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format: US: AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

Incidence of Harm

If this equipment 3G4000 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the Telephone Company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Changes in Telephone Company Equipment or Facilities

The Telephone Company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the Telephone Company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

Equipment Maintenance Facility

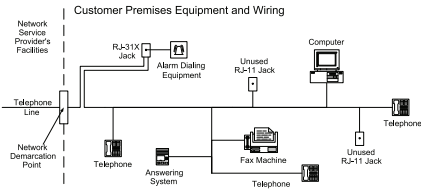
If trouble is experienced with this equipment for repair or warranty information, please contact the facility indicated below. If the equipment is causing harm to the telephone network, the Telephone Company may request that you disconnect the equipment until the problem is solved. This equipment is of a type that is not intended to be repaired by the end user.

DSC c/o APL Logistics, 757 Douglas Hill Rd., Lithia Springs, GA 30122

Additional Information

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

Alarm dialling equipment must be able to seize the telephone line and place a call in an emergency situation. It must be able to do this even if other equipment (telephone, answering system, computer modem, etc.) already has the telephone line in use. To do so, alarm dialling equipment must be connected to a properly installed RJ-31X jack that is electrically in series with and ahead of all other equipment attached to the same telephone line. Proper installation is depicted in the figure below. If you have any questions concerning these instructions, you should consult your telephone company or a qualified installer about installing the RJ-31X jack and alarm dialling equipment for you.



This product meets the applicable Industry Canada technical specifications. The Ringer Equivalence Number (REN) indicates the maximum number of devices allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices not exceed five. The Ringer Equivalence Number (REN) for this terminal equipment is 0.0. Le nombre équivalent de sonneries (REN) de cet appareil terminal est 0.0. The reference to the 3G4000 throughout this manual is applicable to the following model numbers: 3G4000 and 3G4000RF.

NIST Validation of encryption algorithm AES128 certificate No. 3091.

WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20cm or more must be maintained between the antenna of this device and persons during device operation.

Limited Warranty

Digital Security Controls warrants the original purchaser that for a period of twelve months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Digital Security Controls shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labour and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original purchaser must promptly notify Digital Security Controls in writing that there is defect in material or workmanship, such written notice to be received in all events prior to expiration of the warranty period. There is absolutely no warranty on software and all software products are sold as a user license under the terms of the software license agreement included with the product. The Customer assumes all responsibility for the proper selection, installation, operation and maintenance of any products purchased from DSC. Custom products are only warranted to the extent that they do not function upon delivery. In such cases, DSC can replace or credit at its option.

International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Digital Security Controls shall not be responsible for any customs fees, taxes, or VAT that may be due.

Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Digital Security Controls must first obtain an authorization number. Digital Security Controls will not accept any shipment whatsoever for which prior authorization has not been obtained.

Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

- damage incurred in shipping or handling;
- damage caused by disaster such as fire, flood, wind, earthquake or lightning;
- damage due to causes beyond the control of Digital Security Controls such as excessive voltage, mechanical shock or water damage;
- damage caused by unauthorized attachment, alterations, modifications or foreign objects;
- damage caused by peripherals (unless such peripherals were supplied by Digital Security Controls);
- defects caused by failure to provide a suitable installation environment for the products;
- damage caused by use of the products for purposes other than those for which it was designed;
- damage from improper maintenance;
- damage arising out of any other abuse, mishandling or improper application of the products.

Items Not Covered by Warranty

In addition to the items which void the Warranty, the following items shall not be covered by Warranty: (i) freight cost to the repair centre; (ii) products which are not identified with DSC's product label and lot number or serial number; (iii) products disassembled or repaired in such a

manner as to adversely affect performance or prevent adequate inspection or testing to verify any warranty claim. Access cards or tags returned for replacement under warranty will be credited or replaced at DSC's option. Products not covered by this warranty, or otherwise out of warranty due to age, misuse, or damage shall be evaluated, and a repair estimate shall be provided. No repair work will be performed until a valid purchase order is received from the Customer and a Return Merchandise Authorisation number (RMA) is issued by DSC's Customer Service.

Digital Security Controls' liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty. Under no circumstances shall Digital Security Controls be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property. The laws of some jurisdictions limit or do not allow the disclaimer of consequential damages. If the laws of such a jurisdiction apply to any claim by or against DSC, the limitations and disclaimers contained here shall be to the greatest extent permitted by law. Some states do not allow the exclusion or limitation of incidental or consequential damages, so that the above may not apply to you.

Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) and of all other obligations or liabilities on the part of Digital Security Controls. Digital Security Controls neither assumes responsibility for nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

WARNING: Digital Security Controls recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

Out of Warranty Repairs

Digital Security Controls will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Digital Security Controls must first obtain an authorization number. Digital Security Controls will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Digital Security Controls determines to be repairable will be repaired and returned. A set fee which Digital Security Controls has predetermined and which may be revised from time to time, will be charged for each unit repaired.

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