

IOM G75-DFC

Differential Filtration Controller



Baccara's G75-DFC is a 1-3 stations filtration backwash controller, with optional main valve output. It can backwash the filters by a differential pressure gauge switch signal (Baccara's G75-DP DP switch), and/or by time intervals. a

This document is the installation, operation and maintenance manual of the G75-DFC controller

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INTRODUCTION

General

The Baccara Differential Filtration Controller combines a Controller and a Differential Pressure Sensor (DP).

The Controller has seven wires; four wires for valves, and a molded 3 wire cable with connector for the DP switch.

The G75-DFC operates up to three G75 4Ω latch two-wires solenoids, and has a display screen that shows the actual differential pressure (DIF) and the pressure SET point.

The Flushing Cycle (FC) begins when the DIF reading is greater than or equal to the SET value.

Display:

The LCD display shows:

- The actual differential pressure - DIF
- The pressure set point - SET
- The flushing cycles counter - FC
- While in flushing, a Faucet icon appears on screen
- When the battery needs replacing, a Low Battery icon appears on screen

Technical Data

Controller Set Supplied with	DFC controller, suitable for DC only, and one analog sensor
Mechanical	• Operating temperature: -10°C to 60°C • Outdoor UV protection • Front panel cover protection • "H" proof pressure: 14 bar (203 PSI) • "H" pressure must be ≥ "L" pressure
Electrical	DC units are powered by single 9V alkaline battery. • Back-up memory • Low battery warning • Power saving LCD
Mounting	• Pressure ports 1/8" BSP/NPT (male) • High pressure port is marked by the letter "H" on the housing • Connect high pressure before low pressure • Disconnect low pressure before high pressure Controller: • Directly on a 28mm diameter solenoid in horizontal or vertical position with adaptor • Wall mounting with four screws • Accessories provided Sensor: 2" (52 mm diameter)
Software	See the "Programming" chapter of this document
Options	Option to change default factory settings
Standard protection class	IP66 Dust and watertight
Solenoid	G75-A, GALIT Latch 4Ω, G75-A3P 1Ω

SAFETY INSTRUCTIONS

General

- Prior to installation, operation, maintenance or any other type of action carried out on the G75-DFC Filtration Controller, read the safety, installation and operation instructions carefully.
- The G75-DFC Filtration Controller operates as part of larger irrigation systems; therefore, it is essential to comply with all the safety instructions and standards relevant to the whole irrigation system.
- During installation, operation, or maintenance of the controller all conventional, general and local safety instructions should be observed in order to avoid danger to the workers, the public or to property in the vicinity.
- Always use personal safety gear such as gloves, full coverage clothes, helmet, and safety goggles.
- When installing or servicing the G75-DFC Filtration Controller, use only standard and adequate tools.
- The G75-DFC Filtration Controller must be used with non-hazardous liquids.
- The filtration battery controlled by the G75-DFC Filtration Controller enters to backwashing mode automatically without warning.
- No change or modification to the equipment is permitted without a written notification given by Baccara Automation & Control.
- Always observe standard safety instructions and good engineering practices whilst working in the filtration system vicinity.
- Use the G75-DFC Filtration Controller only for its intended use, as designed by the manufacturer, any misuse of the controller may lead to undesired damage and may affect your warranty coverage.

Preparation to Installation

- Shipping and transporting the G75-DFC Filtration Controller must be done in a safe manner and in accordance with the relevant standards and regulations.
- Electrical wiring should be performed by an authorized electrician only, using standardized and approved components and tools. Locate the G75-DFC Filtration Controller where direct water splashing on the electrical components of the controller is avoided. Prevent electrification; when using an external power, appropriate external fuse and wires gauge are required.
- Install the G75-DFC Filtration Controller where the filtration battery can be clearly seen from its installation point.

Installation

- Install the G75-DFC Filtration Controller according to the detailed Installation Instructions provided with it and according to the description given in this manual.
- Leave enough clearance around the G75-DFC Filtration Controller for easy access for safe maintenance.
- Ensure easy and safe access to the G75-DFC Filtration Controller without climbing on pipes or equipment. Make sure that any access equipment is built, installed and used in accordance with the relevant local regulations and standards.

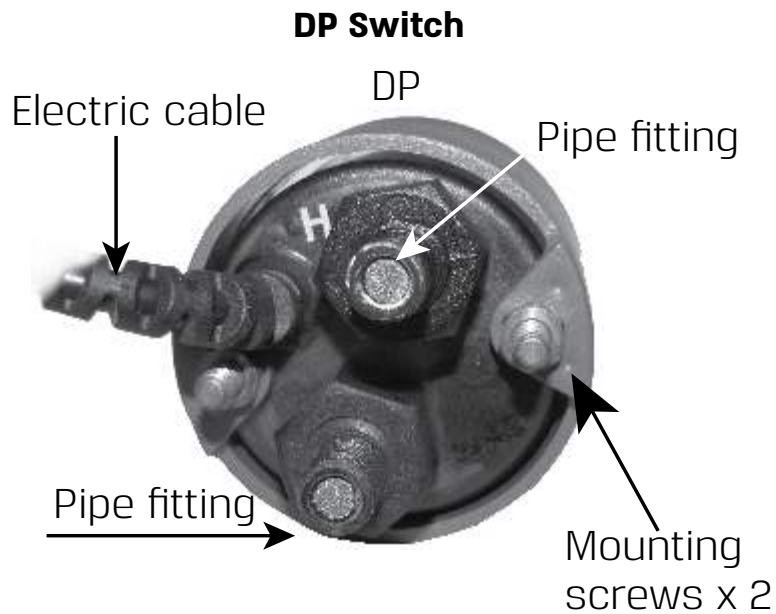
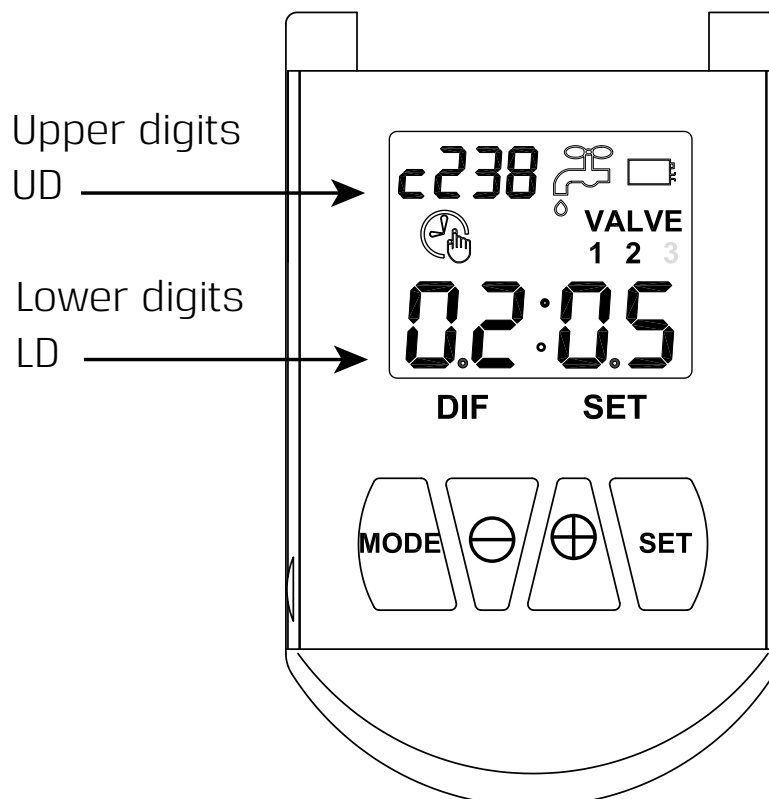
First Startup

- Carefully observe the First Start-up operation instructions prior to the first operation of the G75-DFC Filtration Controller.
- For smooth operation and performance of the G75-DFC Filtration Controller, make sure to perform the startup and first operation procedures exactly as described in this manual.

Operation and Maintenance:

- Do not operate the G75-DFC Filtration Controller before reading carefully and being familiar with its operation instructions.
- Never operate or use the G75-DFC Filtration Controller for purposes other than its original design and operational envelope.
- When servicing the G75-DFC Filtration Controller, disconnect it and the filters from the power supply.
- Before returning to regular operation follow the First-time Start-up Operation instructions as detailed in this user manual.

The G-75-DFC Main Components

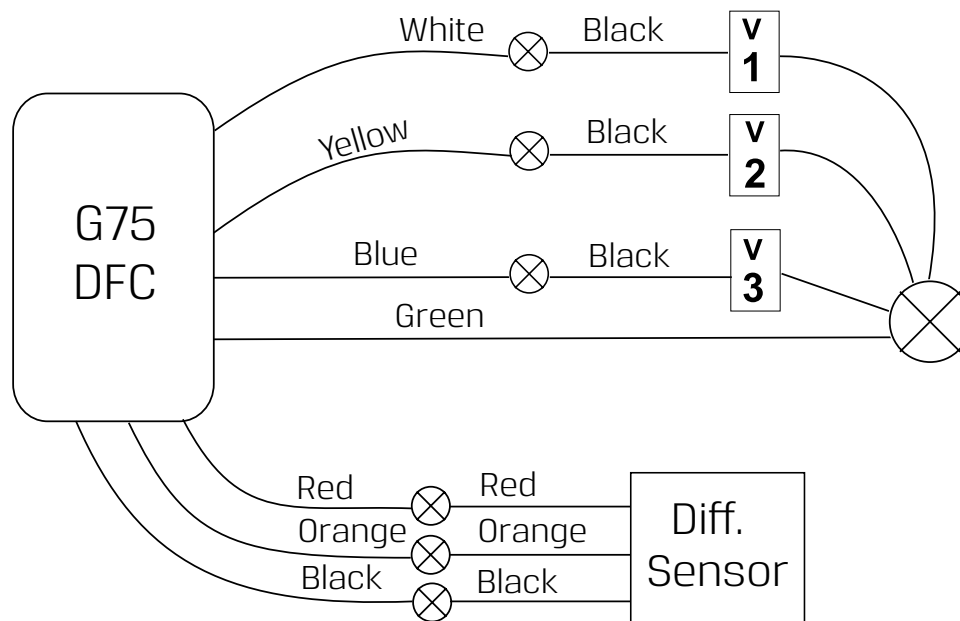
**Controller (DFC display)**

INSTALLATION

G75-DFC - Wires assignment

The colors and tasks of the four controller's solenoids wires:

- Green - used as the Common Connection for the three DC solenoids (connects to the Green solenoids' wires)
- White - Connects to the black wire of solenoid number 1 (filter valve 1)
- Yellow - Connects to the black wire of solenoid number 2 (filter valve 2)
- Blue - Connects to the black wire of solenoid number 3 (filter valve 3)
- Black wire of the Differential Pressure switch.



DP Switch Installation

Connect the controller's molded cable with the 3-wire connector to the DP switch.

Important: Connect the High-Pressure control tube to the red connector of the DP switch first, then connect the Low-Pressure control tube to the black connector of the DP switch. When needed disconnect the Low-pressure tube before the High-pressure control tube.

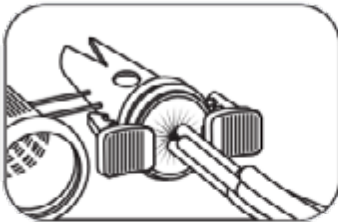
LV9000 - Wire Connectors

(Provided by Blazing Waterproof Small Wire Connector | LV9000)



IMPORTANT: Turn off power before installing or removing connector. Product to be used in accordance with local and national codes.

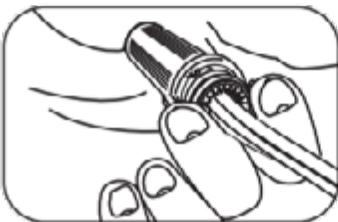
1. Strip wires $\frac{3}{4}$ " and group bare wires ends together. Do not pre-twist solid wire.
You must pre-twist stranded wire. If using both wire types, you must wrap stranded wire around untwisted solid wires (1a).



2. Insert wires through flexible sealing fingers and bend bare wire ends together into either "V-Channel." With proper $\frac{3}{4}$ " strip length, wire tips just reach to edge of round hole below "V" (2a).



3. Separate connector, removing plastic "link" or "leg" from inner sleeve. Push inner sleeve into Pre-filled outer sleeve until double-locked. Pre-filled connection. Do not reuse.



DryConn #22 to #12 AWG- Wire Connectors (Provide by DryConn).

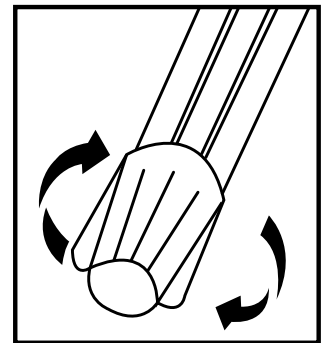
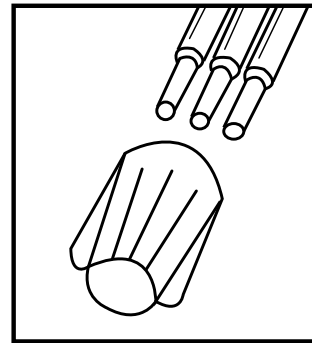
1. Strip #22 - #18 wires $\frac{1}{2}$ " (12.7mm)
And #16 - 12 wires $\frac{3}{8}$ " (9.5mm).
2. Align any frayed strands or conductors.
3. Pre-twisting unnecessary. Place stripped wires together with ends of insulation even.
4. Twist connector onto wires pushing firmly until hand-tight. Do not over torque.
5. Wipe sealant in and around conductors and connector opening while tightening. Do not reuse.



DryConn #22 to #12 AWG - Wire Connectors (Provided by DryConn)



1. Strip wires 13 mm.
2. Align frayed strands or conductors.
3. Do not pre-twist. Place stripped wires with ends even, lead stranded wires slightly.
4. Twist connector onto wires pushing firmly until hand-tight. DO NOT over torque.
5. Swipe excess sealant in and around conductors.
6. DO NOT REUSE.



Operating Modes

- Auto UD = Upper Digits
- Off LD = Lower Digits
- FC counter rest
- Manual FC

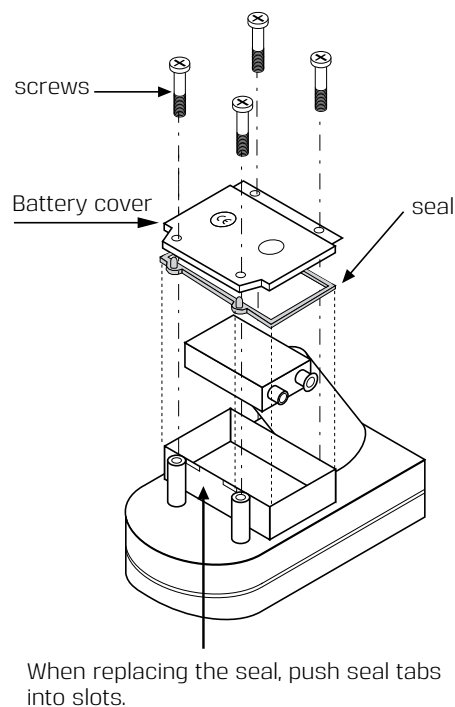
BATTERY INSTALLATION

Before installing the battery

1. Read the safety instructions chapter of this document
2. Make sure that the solenoids and the DP wires are isolated from each other - prevent short circuits.
3. Using a Phillips screwdriver, remove the four battery cover screws (see the following drawing).
4. Remove the cover and the seal.
5. Install the 9V alkaline battery.
6. Reinstall the seal into its designated slot, put back the cover, and secure the four screws.

The LCD display shows:

- The actual differential pressure - DIF
- The pressure set point - SET
- The flushing cycles counter - FC
- While in flushing, a Faucet icon appears on screen
- When the battery needs replacing, a Low Battery icon appears on screen



Replacing the battery:

1. Replace the battery at the beginning of each irrigation season and whenever the Low Battery Symbol appears on the controller's screen.
2. Always use the best quality battery to ensure at least one year's autonomous operation.
3. When replacing the seal, push its tabs into the slots.

The User Interface

Monitoring the controller's operation

The G75-DFC has two operation modes: Auto and Off.

The Auto mode

The Auto mode is the running mode of the controller, while in this mode the upper digits (UD) of the screen display the current accumulation of the Flush Cycles Counter, and the lower digits (LD) display the Differential Pressure (DIF) and its Settings Value.

When the controller backwashes the filters the Faucet Icon appears on the display's upper line and the number of the currently backwashed filter blinks.

When low battery state is detected the Battery Icon on the upper line of the screen starts blinking.

The controller starts a backwash cycle (FC), when the current DIF reading is greater than the SET value for (n) number of consecutive DIF readings. The backwash cycle ends one minute after the last filter cleaning ends.

The display turns OFF (blank) if no button is pressed for one minute. Pressing any button turns the display ON.

The OFF mode

This mode is used when the operation of the controller is paused, such as off season or when controlling the filters is not required. In the OFF mode the lower line of the controller (LD) displays OFF. In this mode the controller stops reading the DIF switch, and the display turns OFF (blank) if no button is pressed for one minute.

Switching operation modes

When the display is turned ON pressing the MODE button shortly (about 0.5 of a second) switches the controller from Auto to OFF mode and vice versa.

The backwash cycles counter

When the controller is in Auto mode, pressing the MODE button together with the (Plus) key displays the current value of the counter on the display's upper line (UD).

Resetting the counter to zero is done by pressing together the (Minus) key. The upper line displays c000 and the controller returns to Auto mode.

Starting a backwash cycle manually

When the controller is in Auto mode, pressing the SET button together with the (Plus) key starts a backwash cycle, the screen displays the Hand and the Faucet icons and the currently backwashing filter number blinks. The controller returns to Auto mode once the backwash cycle ends.

To manually stop a backwash cycle press the SET button together with the (Minus) key. The cycle stops and the controller returns to Auto mode.

Programing the controller

The G75-DFC controller has two types of operation parameters: factory-set parameters and user programmable parameters.

Factory-Set Parameters:

The factory-set parameters cannot be changed by the user and they include the following:

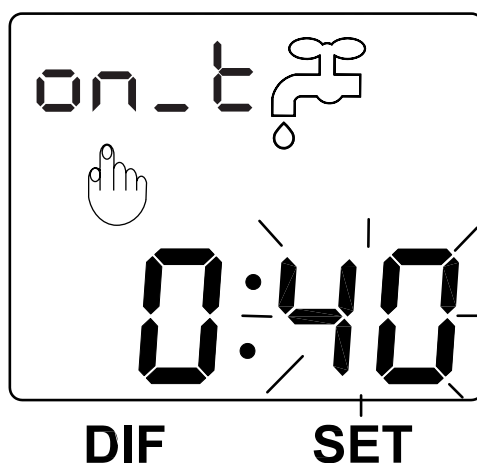
- Pressure units: bar
- Flush Cycle (FC) delay: 2 consecutive readings of $DIF \geq SET$ before the FC starts.
- Sample Interval time: In Auto operation mode, as the Differential Pressure (DIF) readings get closer to the SET point, the interval time between samples shortens. The maximal interval time between readings is 60 seconds while the minimal interval time between readings is 5 seconds.
- The delay between filters during flushing (Off time between valves) is 20 seconds.
- Number of consecutive flush cycles (FC) for alarm is 5 cycles.
- Sensor calibration - cannot be changed by the user.

User Programmable Parameters:

Setting the backwash time (Valve ON Time):

The default value of this parameter is 40 seconds per filter, while the programmable range is up to 5 minutes and 59 seconds.

1. Press the **MODE** button until the following screen appears:



2. Using the $\oplus$ and the $\ominus$ keys, adjust the seconds.
3. Press **SET** to continue.
4. Using the $\oplus$ and the $\ominus$ keys, adjust the minutes.
5. Press **SET** to complete the setting.

TROUBLESHOOTING

Problem	Cause	Check	Solution
The controller dose not perform flushing (Automatic or Manual)	1. No water	1. Check the inlet pressure and the system flowrate	1. Make sure that the water supply (or the pump) is on.
	2. Empty Battery	2. Check the battery	2. Replace the battery
	3. Incorrect DP settings - High	3. Check the DP across the filtration system. If it is lower than the setting, make sure it is increasing over time. If not check the filters integrity.	3. Lower the DP setting to appropriate valve for the specific water quality and dirt load.
	4. No control pressure	4. Check the control tubes filter for clogging	4. Clean the control tubes filter
The controller backwashes constantly	1. Incorrect DP settings - Low	1. Check if the DP is set too low	1. Set the DP to 0.5 bar
	2. Sensor not zeroed	2. Disconnect the upstream and downstream tubes and check that the pressure indicated in the octopus app is 0	2. Disconnect the upstream and downstream tubes and perform 'Zero offset' from the advanced settings screen
Valve does not open / close	1. The valve number selected is incorrect	1. Check the valve number	1. Select the correct valve number
	2. Faulty solenoid	2. Check the solenoid	2. Replace the solenoid
	3. No control pressure	3. Check the control tubes' filter for clogging	3. Clean the control tubes' filter
	4. Faulty flushing valve	4. Check the valve	4. Service or replace the valve
Valves open instead of closing and close instead of opening	1. Solenoid valves in revers polarity	2. check if the solenoids are connected in reverse polarity	3. Revers the solenoids connections polarity

WARRANTY

Baccara Geva ACS Ltd. ("Baccara") products are made to exacting standards of design, material, workmanship, and quality control and are warranted to be free of defects in material and workmanship and reasonably fit for the uses set forth in Baccara's catalog or the purchase order specifications for twelve (12) months from delivery or eighteen (18) months from shipment of the product to buyer, whichever occurs first, if properly installed and maintained and under the normal use and service for which the product is intended.

This warranty does not apply in cases of damage resulting from breakage, negligence, neglect (such as neglect in the maintenance of the product, including the use of unfiltered water, if applicable), abuse, mishandling, normal depreciation or wear and tear, short circuit, breakdown resulting from an irregular power supply (voltage drop), fall or any accident including natural disaster and force majeure damage. For clarity, any repair of such damage, if possible, shall involve a fee.

This warranty will not apply in the event of a breakdown due to operation not in accordance with the instructions for use mentioned in our catalog and the customer information leaflets.

Buyer shall inspect the product within ten days of delivery and must immediately notify Baccara of any defects. Failure to so notify Baccara within such ten-day period shall constitute a waiver of all claims by Buyer against Baccara arising out of such defects.

This warranty is in lieu of all other warranties whether they are statutory, express or implied, including, among other things, any implied warranty of merchantability fitness for a particular purpose not set forth in Baccara's catalog.

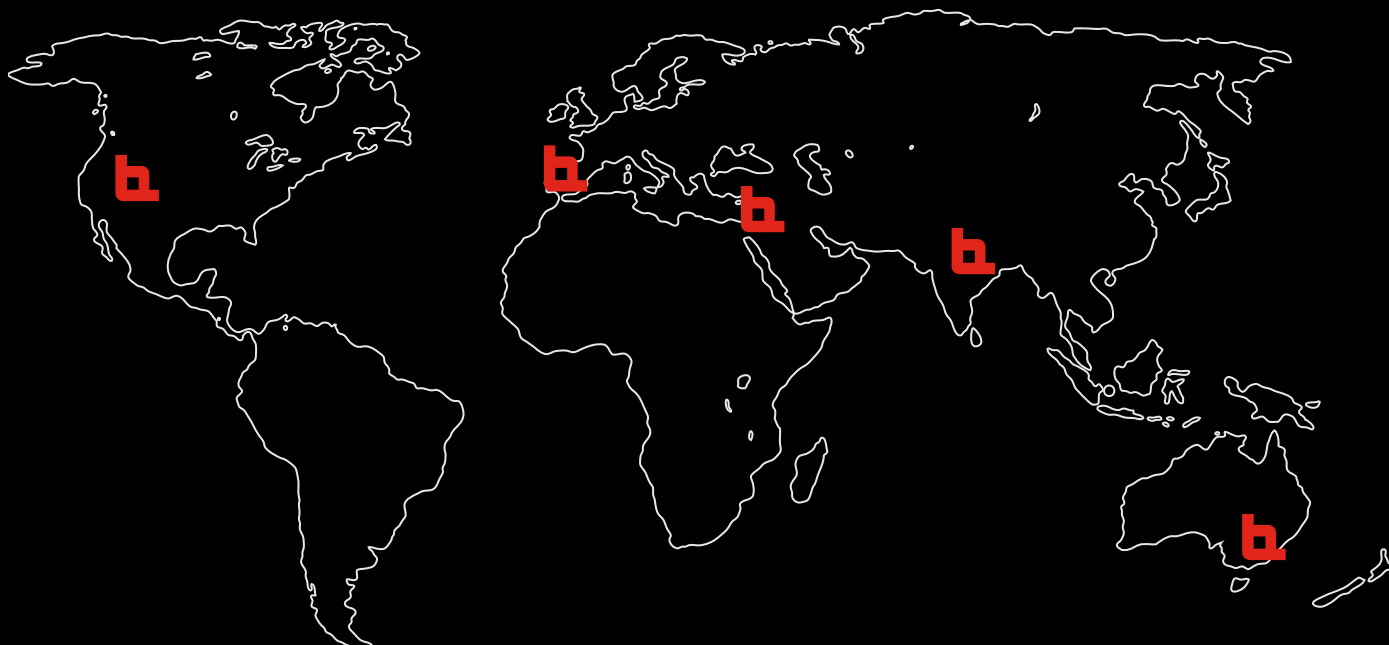
The warranty will expire in the event of any modification and / or repair made to the product not by a person authorized by Baccara and / or the use of chemicals not in accordance with our instructions.

Baccara shall not be liable for any consequential, incidental, or special damages resulting directly or indirectly from the design, material, workmanship, operation or installation of any of its products and neither assumes nor authorizes any other person to assume on its behalf any other liability in connection therewith. Buyer's exclusive remedy shall be the repair or replacement, according to Baccara's exclusive discretion, of any such defective product, after inspection and verification by Baccara, provided that such defective product was purchased from Baccara or from any of its authorized distributors. Service and repair pursuant to this warranty shall be provided in Baccara's facilities and is subject to presenting the warranty certificate, invoice and delivery of the product for inspection. Buyer shall deliver the product to one of Baccara's facilities and collect it from the same facility once repair is completed.



Factory and Head Office: Baccara Automation Control
Kvutzat Geva, 18915, Israel
Tel: (972) 4 6535960 Fax: (972) 4 6531445
E-mail: baccara@netvision.net.il www.baccara.co.il





BACCARA WORLD WIDE

BACCARA Corporate Headquarters

Kvutzat Geva, 1891500, Israel
T. +972 4 6535960
F. +972 4 6535950
info@baccara-geva.com
www.baccara-geva.com

Baccara Australia Pty Ltd.

15/347 Bay Rd. Cheltenham | VIC,
Australia 3192
T. +61 (0) 3 9553 4963
F. +61 (0) 3 9553 4965
Cheltenham, Victoria 3192
Australia
australia@baccara-geva.com
www.baccarageva.com.au

BACCARA SPAIN

C/ Marqués de Monteagudo
Nº 24, 4to Derecha, Spain
T. (+34) 913446310
info@baccara-geva.com
www.baccara-geva.com/es

Baccara USA

1312 W Stanford Ave
Englewood, CO 80110
T. 719-304-4224
F. 520 746 9390
info.us@baccara-geva.com
www.baccarausa.com

