

User manual **COLD DISPLAY CASES**

self contained or remote refrigerated



Cold display cases

Guidance and help for this user manual

This manual is valid for all refrigerated display cases as well as the energy-optimised version GREEN; regardless of the various possibilities of glass styles and heights, assisted- or self serve displays, drop-in, slide-in or free standing style, interior for Gastronorm or Euronorm size.

Below pictured possibilities are showing most of the available versions, but due customised solutions of the refrigerated display cases it's not possible to show all possible options in this manual.



VARIOUS VERSIONS FOR YOUR REQUIREMENTS

COLD

GREEN LINE



THE DESIGN (samples shown on closed displays)



curved



square



slanting
not for insulated glass



PRO curved



PRO curved



THE POSSIBILITIES ON CUSTOMER SIDE



closed



open



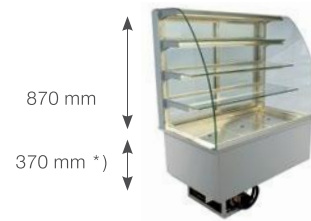
flip-up doors



sliding doors



THE HEIGHTS (samples shown on closed displays)



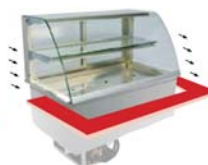
*) flat internal well optionally available, 195 mm



KINDS OF INSTALLATION (Samples shown on closed displays)



Drop-in



Slide-in



Free standing



Counter top



PRO

Operating and installation instruction

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AKE reserves the right to change specifications and construction, as part of ongoing product improvement.

Part A User manuel

1.	Introduction	44
1.1.	Welcome	44
1.2.	Warranty and liabilities	44
1.3.	Symbols and notes	45
1.4.	Fundamental safety notes	45
1.5.	Ongoing development	45
1.6.	Validity	46
2.	Purpose of use	47
3.	Proper use of the unit	47
4.	Improper use of the unit	47
5.	Safety notes	47
6.	Fundamental operating notes	48
6.1.	Start up	48
6.2.	Switch on the appliance	48
6.3.	Setting the temperature	48
6.4.	Automatic defrosting	49
6.5.	Manual defrosting	49
6.6.	Lighting	49
7.	Loading restrictions	49
8.	Operating description	50
8.1.	Setting the temperature of the refrigerated base	52
8.2.	Loading restrictions for the refrigerated base	52
9.	Cleaning and care	53
9.1.	General recommendations	53
9.2.	Detergents	53
9.3.	Special cleaning hints	54
9.3.1.	Cleaning of the interior and the evaporator	54
9.3.2.	Glass cleaning instructions	55
9.3.3.	Night blind cleaning instructions	55
10.	Trouble shooting	56
11.	Dangers	58
11.1.	Electrical energy	58
11.2.	Risk of injury	

Part B Technical Information

1.	Installation and start-up instructions – help and advice	59
2.	Installation and start-up instruction – for authorized refrigeration companies and qualified service personnel	60
2.1.	First steps	60
2.2.	Installation of the controller display	61
2.3.	Information regarding power connection	61
2.4.	Information regarding refrigeration connection	62
2.5.	Information regarding water and drain connection	62
2.6.	Prevention of the most common error	63
2.7.	Air ventilation	64
2.8.	Calibration of the sensor	65
2.9.	Maintenance	65
3.	Maintenance and Service	66
3.1.	Service notes	67
3.2.	Spare parts	67
4.	Programmable digital refrigeration controller	68
4.1.	Programming instruction – Refrigerated display cases	68
5.	Schematic circuit diagram	71
6.	Declaration of conformity	74

1. Introduction

1.1. Welcome

With the purchase of this new refrigerating equipment you have decided on a product that combines the highest technical demands with practical service comfort. We recommend that you read these operating and maintenance instructions carefully in order to become familiar with the product quickly.

- Before you start the refrigerated display case, please read the regards and instructions in this manual.
- Take your time to read the user manual, it is worth your investment. The indicated instructions here, general and technical, will help you to keep your device in an optimal operating condition for a long time.
- Unfortunately a manual can not consider all eventualities. Do not hesitate in case of ambiguity by the installation, during the operating or by the attendance, to call your dealer. Often some questions can be cleared by a simple telephone call.

With the proper treatment you will enjoy this appliance for a long time. Please keep these operating and maintenance instructions to consult in case any maintenance and repairs are needed. With the purchase of this new refrigerating equipment you have decided on a product that combines the highest technical demands with practical service comfort.

1.2. Warranty and liabilities

Fundamentally, our „General terms of sale and delivery“ are valid. These are known to the operator upon the signing of the contract at the latest. Claims of warranty and liability for damage to persons and property are not possible, if they result from one or several of the following causes:

- Improper use of the unit.
- Improper assembly, start up, operation & maintenance of the unit.
- Operating the unit with defective safety devices or safety devices which have not been installed properly and are not in working condition.
- Disregard of the instructions in the operating manual concerning transportation, storage and installation.
- Unauthorized mechanical or electrical changes to the unit.
- Insufficient maintenance of wear and tear parts.
- Unauthorized repair.
- Extreme environmental exposure, fire, explosions e.g.
- Forces of nature or force majeure risk

Also excluded from the liabilities are:

- Breakage of glass, breakage of plastic components, cartridge seal or illuminating parts.
- All damages, which could be arise by wrong setting the control unit, from unqualified people.
- Damage or malfunctions based on a wrong assembling of the cooling unit after the cleaning of the unit.



Warranty claims can only be forwarded if all instructions are strictly followed!

1.3. Symbols and notes



This symbol points to important references for the proper use of the unit.
Not paying attention to these references can lead to a working disruption of the unit or to the environment!



This danger symbol means a potential or direct threat to the life and health of persons and/or a possible dangerous situation.
Ignoring these references may result in dire consequences for your health and/or can lead to property damages!



This symbol means: Hot surface, do not touch the surface“ - Attention, risk of burning!
The top of the shelves, the glass and s/s columns at the back of the unit may be hot!



This symbol points to operation tips and especially useful information of optimal use.
Helps you to use all functions on your unit optimally!

1.4. Fundamental safety notes



The connections and any technical adaptations on the refrigerated equipment are only to be carried out by specialists! This is especially valid for any work on the cooling technology, electrical installation, water connection and mechanical work.
Any adaptation is to be authorized by the manufacturer!

- Those covers bearing a warning may only be opened by specialists!
- The bottom and back panels are not to be cleaned by water jet.
- Protective covers and devices may not be removed due to risk of injury!
- The control system may only be opened by an expert.
- Air currents near the refrigerating unit resulting from improperly installed ventilation or draughts are to be avoided, in order to ensure the efficient functioning of the refrigerating unit.
- The surrounding temperature may not exceed 25 °C; the relative humidity may not exceed 60 % over a long period of time.
- All displayed goods must have a core temperature from +5 ° or below when they are loaded into the cabinet
- Due to risk of injury, sharp objects are not to be stored loosely in the refrigerating unit.
- Any glass parts are to be treated with the necessary care in order to avoid injuries resulting from broken glass.
- Components and operating equipment may only be replaced by original parts.












1.5. Ongoing development

AKE reserves the right to change specifications and construction, as part of ongoing product improvement.

Cold display cases

1.6. Validity

These operating instructions are valid for the following models (self contained and remote refrigerated):

		<p>Gastro und BAK „G“ Customer side closed, or flaps for self service</p> <p>Kühlvitrine Gastro „O“ Customer side open</p>
		<p>Kühlvitrine Gastro „HCG“ Customer side closed, or flaps for self service</p> <p>Kühlvitrine Gastro „HCO“ Customer side open</p>
		<p>Auftischvitrine Gastro „A“, Green „A“ Customer side closed or insulated</p> <p>Kühlvitrine BAK „L“ und „KSL“ Customer side closed, stand alone- or drop-in unit with drawer for cakes on service side, „KSL“ with refrigerated base</p>
		<p>Kühlvitrine Gastro „KSV“ Customer side closed, stand alone unit with refrigerated base</p> <p>Kühlvitrine „Green G“, Green „O“ Customer side closed and insulated, side glas panes insulated</p>
		<p>Kühlvitrine Green „KSL“ und „Green L“ mit Auszug Customer side closed and insulated, side glas panes insulated, stand alone units with drawer and refrigerated base</p> <p>BRILLANT KR Customer side open, side glas panes insulated</p>
		<p>Kühlvitrine Green „KSV“ Customer side closed and insulated, side glas panes insulated, stand alone unit with refrigerated base</p>

2. Purpose of use

These refrigerated display cases can be installed in virtually any counter and can be provided as fully self contained – just plug it in and turn on – or remote, where there is a need to locate the compressor at a different location. They are suitable for the refrigeration and presentation of foodstuffs and drinks at temperatures adjustable in range from +4 °C to +12 °C.

This refrigerated equipment is not suitable for chilling foods. Any products to be presented have to be pre-chilled to the temperature required before being placed in the unit.

Before loading the display cases with food or beverages, please wait until the desired temperature has been reached.



Do not fill with hot foods and do not overfill!

3. Proper use of the unit

The drop-in refrigerated displays conform to current state-of-the-art technology. They are constructed in accordance with the recognized safety regulations and are reliable.

However, health and/or life threatening circumstances could arise for the user or a third party or damage could be done to the appliance or other property or equipment should the unit be operated by non-trained personnel in a manner that is improper or in disregard of the regulations.

The appliance may only be operated in a technically acceptable condition and in accordance with all regulations, safety regulations and with conscious regard of the operating instructions! Any other uses beyond those intended are to be considered as not being in compliance with the regulations. The manufacturer/supplier is not liable for any damages resulting from such actions.

The user bears the entire risk. Use in accordance with the regulations includes observance of the mounting and operating instructions and keeping up with the inspection and maintenance regulations.

After cleaning the appliance is to be checked for any loose connections, shears and damages. Any defects found should be repaired.

The appliance is not to be used for non-operating purposes. Any changes to the appliance are to be made solely by the manufacturer! When replenishing the refrigerant only use the refrigerant indicated on the label. Refilling is only to be carried out by authorized service personnel.

4. Improper use of the unit

The refrigerated displays are not suitable for chilling foods. No foodstuffs having a higher temperature than indicated are to be filled into the tubs. Safe operation at temperatures of less than +2 °C is not possible.

The ventilation ducts in the front and back plenum of the presentation area may not be covered as doing so will cut off the air circulation and result in prevention of the cooling function.

5. Safety notes

All safety regulations were followed during manufacturing, particularly the VDE regulations (Association for Electrical, Electronic & Information Technologies) and international CEE regulations. The appliance was subject to a comprehensive final check at the plant.

6. Fundamental operating notes

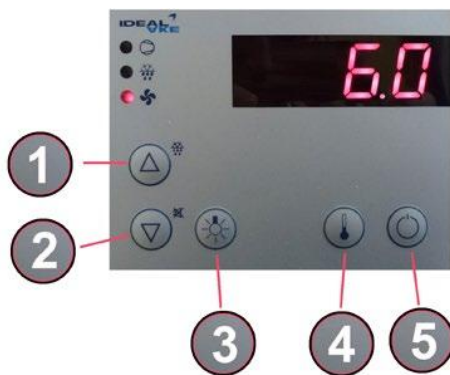
6.1. Start up

After placement or moving the refrigerated display, wait at least two hours before starting. This rest period is needed for the oil to run back into the compressor in case it could have shifted during transport (only valid for self-contained units).

We recommend cleaning the equipment with a suitable disinfectant before first start up.

The equipment must have reached the product manufacturer's indicated temperature before first filling. It is recommended to switch the new equipment on for a period of 24 hours before first filling.

6.2. Switch on the appliance



The refrigerating unit is switched on and off by pressing the STANDBY button (5) for approximately four seconds.

Above the buttons there is a digital display of the cooling regulator. This field shows the average temperature and any errors.

Before filling the display cases with food, please wait until the desired temperature has been reached.

Button 1	UP	Defrosting can be started any time by pressing the UP button for three seconds
Button 2	DOWN	The DOWN button can clear an alarm
Button 3	LIGHTING	Button for internal lighting
Button 4	SET	While SET button is pressed, the setpoint is indicated
Button 5	STANDBY	With this button the controller is switched to standby mode. Pressing the button a second time, restarts the unit.

6.3. Setting the temperature

The interior temperature is regulated by an programmable digital refrigeration controller. This is located underneath the refrigerated well and is easily accessible on operators side.

The Display Cases are set to maintain +4°C (Model „PRALINE“ for chocolate: 12°C) as per factory setting. Your desired temperature can be set by holding down the SET button (4) and simultaneously pressing UP button (1) for higher temperatures or DOWN button (2) for lower temperatures.



The desired value can only be set within a certain range in order to prevent any operating errors.

After resetting the temperature some time needs to pass before the desired temperature has been achieved. Please check the interior temperature a few hours afterwards with an exact thermometer and reset the thermostat if needed.

Depending on the surrounding temperature and humidity, the interior temperature is not to be set too low as this could lead to icing on exposed areas of the cooling element. This will interfere with the cooling performance and with the continuous defrosting which has been set by your specialized dealer for a certain interval.

6.4. Automatic defrosting

Automatic defrosting takes place via the electronic thermostat and is fully automatically controlled.

The defrosting process takes maximum 30 minutes. Defrost cycles are pre-programmed and starts every 3 hours (self serve displays) or 2 hours (displays for assisted service). Cooling mode starts automatically after the end of defrost mode.

6.5. Manual defrosting

Defrosting can be started any time by pressing the UP - button (1) for three seconds. During the process of defrosting the respective LED is illuminated. The LED flashes if defrosting is requested, but may not be started yet due to interlock conditions.

6.6. Lighting

Lighting of the Display case is connected to the control unit and is then switched ON/OFF by pressing the LIGHT button (3) on the controller display.

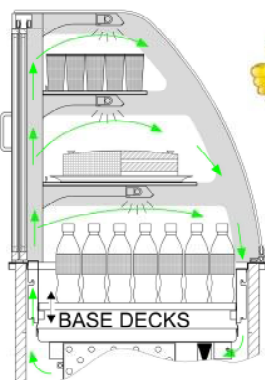
7. Loading restrictions

Load the display case with pre-chilled product from the rear doors. You can place the goods on the glass shelves and on the base decks. BRILLANT models have a deep well with height adjustable base decks. The display case is designed to maintain the temperature of pre-chilled product!

This refrigerated unit is not a refrigerator, and consequently, if warm product is introduced, there could be a considerable delay before the operating temperature falls to the normal operating level.

Don't overload the cabinet with too much products. It is important to leave adequate free space for the refrigerated air to circulate within the display case. Product should be kept clear of the shaded areas, shown in the picture below. Consider the **maximum load for shelves and base decks**, shown on the next page!

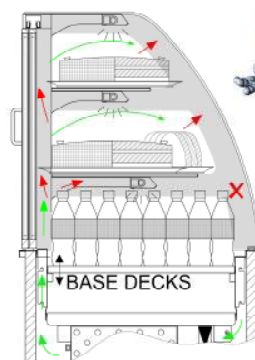
✓ Correct Loading



Cold air curtain is not affected or blocked by goods !

Optimum refrigeration and presentation of the goods!

✗ Wrong Loading



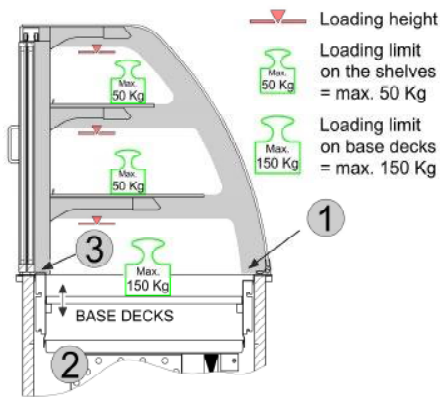
Air flow is blocked and refused through too much goods!

Ineffectiv refrigeration and confusing presentation of the goods!

Cold display cases

8. Operating description

It is important to leave **adequate free space** for the refrigerated air to circulate within the display case. Products should be kept clear of the shaded areas, shown in the picture – see the maximum loading height. A **minimum clearance** of 40 mm should be maintained below the light fittings and air plenums. The ventilation slots at the front (1) and rear (3) of the display case must **never be blocked**.



The presented goods are refrigerated with cold air curtain.

This air curtain is forced by fans which suck the air via air louvers at the air plenum (1) into the Evaporator (2). In this area below the base decks the air is chilled and blown up through the ventilation slots of the air plenums at the rear (3) into the display case. The area of discharge and return air must be free of goods and never be blocked!

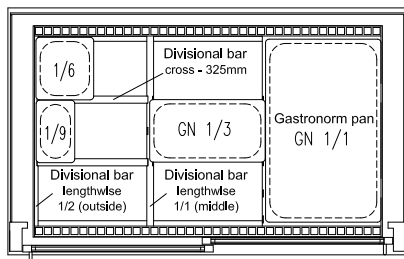
All these components are designed to have an even distribution of chilled air in the whole display case to guarantee constant temperature.

Maximum Load: Shelves each 50 kg, base decks 150 kg in total.



The Brilliant GASTRO and Smaragd display cases are equipped with adjustable base decks. Because of the deep refrigerated well you have the possibility to represent your products in different heights, with straight or slant base decks, or without decks, example for beverages.

Certainly you can also use Gastronorm containers for these models. GN 1/1 pans can be placed directly into the well. Smaller pans need optional adapter bars (lengthwise and cross) - see figure on left side.



You can use Gastronorm pans with a maximum depth of 150 mm!

A flexible combination of GN pans, adjustable base decks and storage inside the well (for beverages) offers various possibilities of product presentation.



The Brilliant BAK series and Brilliant L or SL come with flat base, there are no adjustable base decks..

Interior of these units is designed to accommodate Euronorm trays (600x400mm), so these are the right units to display bakery products like cakes, confectionary, sweets, e.g.



The ventilation openings inside the display cases must never be blocked!

Display cases with drawer element



Models BAK L and BAK SL, and series Green L and Green SL are equipped with a drawer, which offers easy loading of the deck base from service side with large products like cakes or similar.

Remove the drawer to clean evaporator and interior well (**picture 1**). Pull out the drawer to the end position, then lift up the drawer approximately 5 cm to remove the whole drawer element from the display case (**picture 2** – showing the telescopic rails). After removing the drawer you have to take out the stainless steel blind (**picture 3**), then lift up the evaporator coil and fix it in up-position (**picture 4** – lock on left side of the handle). Now you have access to clean the interior well and the evaporator coil.



It is important to keep all display doors closed. If the doors are not fully closed, an even temperature will not be maintained within the display case.

Adjustable shelves

Your Brilliant, respectively Smaragd display offers the possibility to adjust the shelves in height and angle (tilt able). This allows you various presentations of the goods. You can adjust the shelves 1 step up and down (± 25 mm) from the centre position.



Remove the glass

Before moving the shelf to another position please remove the glass. Therefore lift up the glass on customer side until the s/s lug (U-profile protection on the glass) slips out from the bracket – see pictures on right side..



Move the brackets

The shelf brackets are fixed with 2 tabs in the slots. Upper tab is equipped with 2 notches for level or slant position.

- Lift up the bracket
- Draw out the brackets
- Insert the bracket in the new position
- Choose level/slant position

Cold display cases

Freestanding combination displays with refrigerated base

The freestanding combination displays BAK KSL and Gastro KSV, and also GREEN KLS and GREEN KSV come with a refrigerated base with fan blown air refrigeration for storage. Depending on the order, the refrigerated base is delivered with doors and shelves (standard) or with optional drawer elements for GN containers..

8.1. Setting the temperature of the refrigerated base



The refrigeration unit is switched on or off by pressing the green main switch. Beside the main switch the digital display of the controller is arranged. The set-point temperature and possible error messages are displayed here. The factory setting for the temperature is +5 °C.

After switching on the empty appliance it can take up to 3 hours until the desired temperature is reached. If the appliance is filled with goods this time can be extended up to 24 hours. The time until reaching the set temperature will also be influenced by the environmental conditions (room temperature and humidity).

Key 1	SET-Key	Displays set point
Key 2	LEFT-Key	Reduction of the desired set point temperature
Key 3	RIGHT-Key	Increasing of the desired set point temperature
Key 4	O/I-Key	Exit configuration menu, stand by mode

The desired temperature can be set within the range from +2 °C up to +8 °C. The set point temperature can be displayed by pressing Key (1). Simultaneously pressing of Key (1) and Key (2) will lower the desired temperature, respectively the temperature will be risen by pressing of Key (1) and Key (3).

After resetting the temperature needs some time to pass before the desired temperature has been achieved. Please check the interior temperature a few hours afterwards with an exact thermometer and reset the thermostat if needed. The temperature setup should be made by a specialist during installation.

8.2. Loading restrictions for the refrigerated base

The interior is designed for the storage of beverages and packed and loose foodstuff of all kind. This does not apply to seafood, especially clams. Foods with high acid part, like salads, vinegar, fish and seafood must be packed in containers, closable boxes or vacuum-packed.



Unpacked food, highly acidic, will destroy the evaporator coil and causing corrosion on the stainless steel!

Please pay attention that the goods are not placed too tight to the evaporator or block the ventilation openings. The air circulation slots of the drawer must not be blocked by the goods completely. Else an optimal cooling of the goods will not be assured. Also when using GN containers please take care not to overload them, particularly near the exhaust openings of the evaporator.

The inside temperature of the unit is much more sensitive to changes than the stored goods. Their temperature will change with more delay. That means that by loading the unit with not pre-chilled goods the thermometer may display the desired temperature although the temperature of the goods is not the desired one yet.

Avoid too low temperature in the storage drawer or door element, beverages could freeze and burst the bottle. .

9. Cleaning and care

The following is advice on maintenance, care, trouble shooting and service for your refrigerated display cases. The interior and the outside of the unit have to be cleaned every day in accordance with hygiene regulations. Only then can you guarantee optimal presentation of the goods.



CAUTION!

Before you start to clean and care switch off the appliance and disconnect it from the mains!.

For cleaning purposes the unit must be turned off. Therefore, the best time for cleaning is at the end of your working day. The display case can be switched off during the night or outside of opening hours.

9.1. General recommendations

- The unit has to be cleaned daily.
- Wear acid-proof gloves while cleaning the parts to prevent skin irritations.
- After cleaning with special cleaners you have to wash all parts with clear water and dry them so that there is no cleaner residue on these parts.

It is absolutely necessary to bear some fundamental things in mind to keep this stainless steel unit working and to maintain its long life:

- Always keep the stainless steel surface clean.
- Make certain there is always enough fresh air on the surface.
- Never let the surface come into contact with rusty material. .

9.2. Detergents



Use the following detergents!

- **Lukewarm soapy water:** Use lukewarm soapy water for all surfaces that are in direct contact with the goods.
- **Glass-cleaner:** Removes grease from glass-surfaces. You can lift the glass panels for easy cleaning of the glass and the surfaces underneath.
- **Stainless-steel-cleaner:** The stainless steel surfaces should be cleaned with a stainless-steel-cleaner only.
- **Lamps:** The lamps are to be cleaned with soft paper or cloth only.
- **Drawers, GN pans:** Easily removable without tools for separate cleaning. Use brushes with plastic or natural bristles for cleaning.



Avoid the following detergents!

- Do not use acid, bleaching or chlorine cleaners.
- Never use high-pressure, water pressure or steam jet cleaning machines.
- Do not use inflammable detergents.
- Never use sharp-edged or metallic tools like steel-wool or scrubbing cleanser for cleaning.

Cold display cases

9.3. Special cleaning hints

9.3.1. Cleaning of the interior and the evaporator

Take out the GN containers or base decks (1) and air plenums (2) and inner tray from the well. First of all remove visible dirt inside the well (bottom) to avoid a blockage of the drain (5 und 6). Open the cover from the evaporator unit (3). Entire s/s housing and evaporator coil can be rinsed safely and easily with a hand spray (4). Fans in low voltage (24 V) allow danger-free cleaning. Lift up the evaporator unit and move the lock to the left (5 und 6) – now the evaporator is fixed and allows easy access for cleaning corners and floor of the well (7).



- **ATTENTION:** Before cleaning the unit with water please check that the water can run off. If the unit isn't plumbed to a floor drain, place an external bin below the drain to collect the wastewater.
- The evaporator and the interior have to be cleaned with lukewarm soap water. Always dry the interior after cleaning. After cleaning lift the evaporator, remove the lock and drop the evaporator back in its original position.
- Insert the inner tray, position the air plenums with the hanging tracks and drop in the base decks or GN containers.
- Never clean the outside of the refrigerated well with a water hose or an abrasive sponge. Avoid flowing water near these areas.
- All other surfaces can be cleaned with soft detergents or water.

Each self-contained refrigeration unit requires periodic cleaning of the condenser unit. The condenser coil (looks like a radiator and is directly in front of the fan, on operators side) requires periodic cleaning. A dirty condenser is the main cause of refrigeration overheating, burnout and poor cooling levels.

Similar to the daily merchandise area cleaning, it is necessary to remove the static dust build up from the condenser coils to ensure effective and trouble free operation.



Condenser cleaning instructions

- Remove air grill/louver in front of the condenser coil.
- Remove the dust from the condenser coil; this can be done with either a brush or a vacuum.
- Be careful and don't bend the lamellas.
- Replace the air grill panel

Please assure that the air-in and air-out openings (grille) for ventilation are never blocked!



CAUTION!

The lamellas of the condenser coil are very thin and sharp! Avoid direct contact to prevent injuries!

9.3.2. Glass cleaning instructions

Tilt able front and cover glasses for easy cleaning (Picture 1 and 2) in- and outside.

- **Attention:** Hold glass during opening and cleaning!
- Front glasses made of insulated double glass (Picture 3) are secured via a tight safety cord in end position, please support glass during opening and cleaning to save the cord!
- Don't underestimate the weight of the glass, we recommend two persons for cleaning front and cover glasses on larger display cases!



9.3.3. Night blind cleaning instructions

The night blind of the display cases (for example: Gastro HCOE) should be cleaned with a moist cloth regularly.



CAUTION!

After all cleaning has been completed the display case has to be returned to its original state in order to guarantee efficient operation!

In addition to daily cleaning, service and maintenance of the display case is required to be carried out in regular intervals by qualified specialists. (See Part B - Service Notes)

10. Trouble shooting

It sometimes can have simple causes, if the unit is working incorrectly or it does not work for a longer time. This could be removed independently. Before requesting service, please check the following:

FAULT	POSSIBLE CAUSE	REMEDY
The cabinet does not operate.	There is no power supply to the unit.	Check if plug is firmly in the socket.
	No power at receptacle.	Check fuse / circuit breaker of the building; Restore power to the cabinet.
	Wrong setting of the programmable controller, or digital display don't work.	Call authorized service personnel.
Food not kept cold enough.	One or more doors are open.	Close the doors and test the temperature after 30 minutes again.
	Ventilation louvers/ducts are blocked.	Remove blockage, air vents must be kept free.
	Too warm or too much food.	Add only pre-chilled food and do not overload the unit.
	Set point too high.	Set to desired temperature.
	Ambient temperature above 25 °C.	Adjust store air conditioning, avoid heat sources nearby the cold unit and direct sunlight.
	Too much air movement inside the room.	The unit should not be placed on places with strong air circulation.
	Condenser coil blocked or dirty.	Remove dust and debris.
	Evaporator coil iced up.	De-ice coil (manual defrosting or power off).
	Failure malfunction of the condenser unit or other cooling components.	Call authorized service personnel.
The evaporator iced up.	Refrigerant level low.	Call authorized service personnel.
	Defrosting does not start Defrost cycle is not suitable.	Start manual defrosting. Call authorized service personnel.
	Inadequate ventilation inside the cabinet.	Leave adequate free space for the refrigerated air to circulate within the cabinet.
	Doors opened too long or too often.	Keep all cabinet doors closed.
	Ambient temperature above 25 °C and relative humidity above 55 %.	Adjust store air conditioning to maintain required ambient conditions inside the room.
	Fans not operating.	Call authorized service personnel.

FAULT	POSSIBLE CAUSE	REMEDY
The illuminating is not working.	The light is not switched on.	Press the light button on the controller unit for about one second; if the light does not work call authorized service personnel.
	The fluorescent lamp is defect.	Change the fluorescent lamp, if the light does not work call authorized service personnel.
Condensation on the glasses.	Too low temperatur in the cabinet.	If you press and hold the SET - button you will see the index value - this should not be below 4 °C to 5 °C by cabinets without insulated glass.
	Too high surrounding temperature and too high humidity.	+25 °C surrounding temperature and 55 % air humidity should not be exceeded. If it is possible, turn on the air conditioning!
	Too high fan speed.	Call authorized service personnel

Status display and error notification:

MESSAGE	CAUSE	REMEDY
H i	Refrigerating chamber temperature above alarm limits (parameter A1)	
Lo	Refrigerating chamber temperature below alarm limits (parameter A2)	
E IL	Sensor F1 error, short-circuit	Control sensor F1
E IH	Sensor F1 error, break	Control sensor F1
E2L	Sensor F2 error, short-circuit	Control sensor F2
E2H	Sensor F2 error, break	Control sensor F2
EP0	Intern error of the control unit	Send the controller for repair
EP1	Memory error	Check all parameters
EP2	Data loss at parameter memory	Send the controller for repair

Should the options listed not be the cause of the error, please contact customer service.



The manufacturer is not liable for loss of goods, even if the appliance is still covered by warranty. It is recommended that the temperature of the appliance be checked periodically.

11. Dangers

11.1. Electrical energy

Switch off the appliance immediately when there are interruptions in the electrical power supply!

Any work carried out on the electrical units or utilities may only be carried out in accordance with electrical regulations by an electrician specialist or by those being instructed and supervised by an electrician specialist.



CAUTION: ELECTRIC SHOCK HAZARD!

Do not splash or pour water onto control panel or wiring.

Appliances and unit components which are subject to inspection, maintenance and repair work have to be completely disconnected and volt-free. First, check whether the activated parts have indeed been disconnected and are volt-free, then ground and short them out. Insulate any adjacent parts that are also energized!.



CAUTION: RISK OF INJURY!

Be sure that the unit is disconnected and volt-free before starting any inspection, maintenance or repair work.

11.2. Risk of injury

Some cooling appliances are equipped with gas springs, which keep the evaporator in the upright position during cleaning and service. Once the gas springs begin to weaken and are not able to keep the evaporator in the upright position anymore, they are to be removed and replaced immediately by a specialized service representative.

Be carefully by cleaning and handling the glass. Improper use can cause breakage of glass..



CAUTION: RISK OF INJURY DUE BREAKAGE OF GLASS!

Hold the glass with both hands until reaching the end position.

1. Installation and start-up instructions help and advice

EASY TO INSTALL

Drop-in

Surrounding mounting flange;
drop-in from above into the
cut-out of the counter top

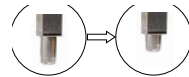


Slide-in

Install heavy cabinets by using
optional base unit to slide-into
the counter



Feet adjustable in height



CONTROL UNIT

- Display detachable for installation in cladding
- Water resistant display
- Continuous regulation of air flow via fan speed



EVAPORATION OF CONDENSATE

- Closed displays (only self contained) supplied with fully automatic evaporation of condensate
- Condensate tray removable for easy-cleaning
- Remote refrigerated and self serve displays: Connect to floor drain
Condensate pan, to empty manually (optional extras)
Electrical evaporation tray (optional extras)



AIR CIRCULATION

Optimum air circulation for condensing unit: Provide front and rear openings twice the surface area of the condenser for adequate air circulation

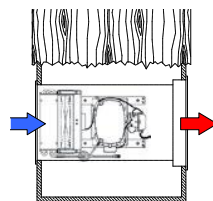
Standard

Air in on service side and air discharge on customer side

On demand

Ventilation on service side

Air inlet and discharge on service side is only possible with our optional available base unit!



Choose the configuration that suits your servery layout best – before your order!



EASY TO CLEAN

Lift up evaporator allows easy access for cleaning and service, tiltable front and cover glasses for cleaning



PROTECTION OF CONDENSER

Optional extra

- Air filter protects the coil against dust, greasy air, damage and injuries
- Easy cleaning in a dish washer



2. *Installation and start-up instruction* *for authorized refrigeration companies and qualified service personnel*

2.1. *First steps*

Control of delivery

Checking for transport damage at the time of delivery is recommended. Any damages are to be recorded and confirmed in writing at the time of delivery and signified from the carrier. For any damages arising after unpacking, you are obliged to immediately communicate this in a written report and a telephone call to the supplier.

Transport is covered under your responsibilities. Failing to report any transport damages with the carrier within the set time leads to the loss of responsibilities by the carrier.

Installation

Don't tilt the refrigerated unit during the installation, the compressor unit could be damaged (only self contained units). Completely remove the plastic film before start up. Take care that your counter frame will carry the weight of the display case and fix the unit. It is essential that the countertop is perfectly level before the unit is mounted.

The openings for air ventilation (air-in and air-discharge) are recommended the double size of the condenser surface! Please avoid placing the unit near any equipment which produce a lot of steam (i.e. dishwasher, etc.), as this will cause icing of the evaporator – this will reduce performance of the unit.

The display cases are designed to operate under normal ambient conditions of 25 °C with up to 55 % relative humidity. Ideally the cases should be located so as to avoid excessive air movement from doors, air-conditioned vents, and other air sources or excessive heat from windows, sun, flood lamps and other heat sources.



Correct installation is necessary for a trouble-free start up of the refrigerated unit. Every installation must conform to the local electric, safety and hygiene regulations.

Preparation

The display cases are easy to install with a minimum of tools. All counter work needs to meet the technical specification in terms of weight, cut out and support. All drop-in units require installation level with the counter and we recommend to protect the counter surface at the time of installation to prevent for possible damages. At the time of installation please remove all internal base trays as well as glass shelves to prevent damage and to gain access to the cooling well.

Please ensure the counter and the countertop are perfectly level before installing the cabinet. The drain should be at the lowest point of the well. Please test that the water can drain freely. If not expressed in the description, all refrigerated units should have a connection to an external drain or at least a manual condensate tray (optional) or an electrical condensate evaporation pan (optional).

Each electrical installation work is only to be carried out by nominated specialists. Ensure that needed tools and technical staff is available for the installation.

Power supply: The units may only be connected to a power socket with a nominal voltage 230 V/single phas/50 cycles.

Electrical Isolation: If a plug and socket is used to connect the cabinet, it must be accessible after the cabinet is installed in its final position. If the cabinet is hard-wired to the mains supply, without using a plug and socket, a means of isolation must be provided.

2.2. Installation of the controller display

With self contained display cases the control unit is mounted underneath the ref. well, alongside the compressor housing. With remote refrigerated display cases the control unit will be loosely attached.



Each control unit consists of a control panel/display and the PCB power box. Both are built in a stainless steel box.

The digital display is connected via a 2 m SUB-D cable with the PCB.

This digital display can be removed and mounted separately up to a maximum of 2 metres away from the PCB box. The required cut-out dimensions for the digital display are 87,5 x 56,5 mm

2.3. Information regarding power connection

These refrigerated units are delivered fully prepared for ready to use. The controllers are factory set for optimum performance. After installation the Parameter H12 (correction of the probe F1) must be controlled and if necessary changed to the new conditions of the location - see also chapter CALIBRATION SENSOR. They should only be adjusted by a qualified service engineer.

All fans are speed controlled by the programmable refrigeration controller STÖRK ST501 (see also the referring programming instruction).

Some units are customized and delivered as requested without refrigeration controller, prepared for external thermostats.

Power supply: The refrigerated unit is provided with a 2 m long 3-wire power cord with plug and it may only be connected to a power socket with a nominal voltage 230 V/single phase/50 cycles. The metal construction of the unit requires the use of a power socket with safety grounding at all times. The electrical power supply is to be secured with a 16 ampere circuit breaker.



Electric installation has to take place via a nominated specialist. The installation must comply with the local electrical, health- and safety regulations.



The connection to another voltage or frequency is not permitted!



The installation of remote refrigerated units has to take place via a nominated refrigeration specialist.

Cold display cases

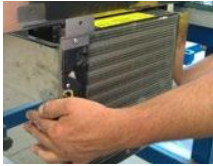
2.4. Information regarding refrigeration connection

All units are equipped with a coated evaporator coil. Expansion valves or capillary tubes are connected with the evaporator and all refrigeration lines and electric wiring lead out on the bottom of the insulated well.

Self contained units (integral)



Self contained units are ready to use, all components are fixed and the refrigeration system is filled with refrigerant. Units with expansion valves come with sight glass with humidity indicator, placed beside the condenser coil.



The condenser unit is placed in a pull-out stainless steel housing and offers easy access for service and maintenance work. Take care that the loop of copper tube is not overstretched!

Remote refrigeration

These units are prepared for connection in an existing refrigeration plant, the copper tubes are insulated and lead through the foamed well on bottom. Expansion valve for the corresponding refrigerant is installed on the evaporator and the system is filled with nitrogen.

Components like solenoid valves, filter dryers and eventually Evaporator Pressure Regulators must be supplied and installed by others. Evaporation temperature must be kept constantly to the required value - see also rating plate of the unit.

Installation work

All installation and servicing work must be made by qualified refrigeration personnel only. The installation must comply with the state of art, the local electrical-, health- and safety regulations and directives.

The whole installation is to take into operation and a function and safety test must be performed. A written report of these tests must be given to the owner.

2.5. Information regarding water and drain connection

There are different ways to dispose condensate.

Closed cabinets (for assisted service) - self contained

Self contained displays for assisted service (entirely closed with glass on front/top/sides and doors on operator side) come with integrated evaporation of the condensate.

Displays for assisted service (remote refrigerated) and all self serve displays

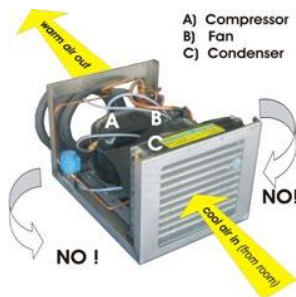
All these units are equipped with siphons (trap), so plumb connections or connections to external condensate evaporation pans must be made in compliance with all Federal, State and Local plumbing Codes and Ordinances. Ensure that condensate and wastewater can not reflux into the refrigerated well.



All drain plumbing installations must be performed by a qualified plumber – in compliance with DIN 1988 for water and DIN 1986 for wastewater.

2.6. Prevention of the most common error

Correct ventilation of the condensing unit of self contained display cases is very important for the correct and efficient functioning of the display case. The condenser has to transfer the heat of the refrigerant (energy of the products) and the electrical heat of the compressor to the surrounding air in the room in order for the cooling process to work.



A) Compressor

The compressor pumps the refrigerant through the cooling system.

B) Fan

The condenser fan draws fresh air in from the room and passes it through the compressor expels the hot air out of the condenser.

C) Condenser

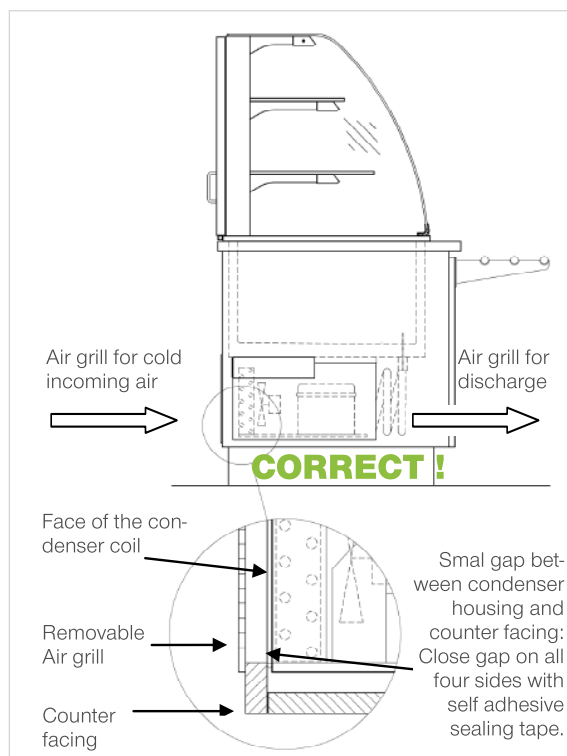
The condenser coil is referred to as heat exchanger and cools the returning hot refrigerant.



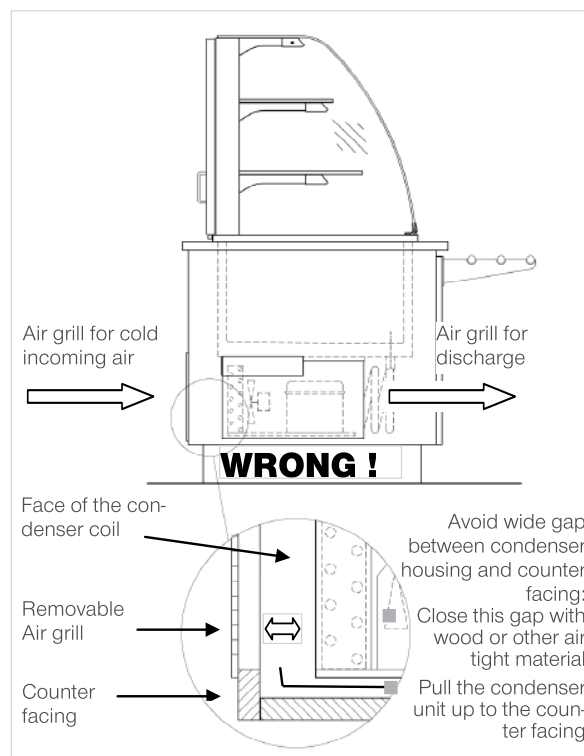
Don't allow warm air returning to the room to re-circulate and remix with cooler air coming in from the room.

All self-contained units come with a moveable s/s compressor housing. This offers the possibility to locate the condenser face near the air grill (air-in) of the counter to avoid circulation.

Air grill of the counter facing is **less than 5 mm** away from the condenser coil:



Air grill of the counter facing is **more than 5 mm** away from the condenser coil:



Cold display cases

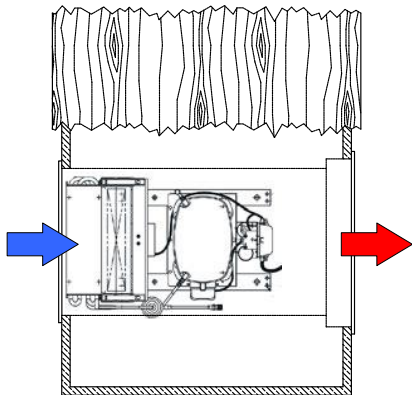
2.7. Air ventilation

All equipment is delivered with air-in on service/operator side and air discharge on customer side. The air flow is through the counter, from service side to the discharge opening on customer side.

If there is no possibility to discharge the hot air on customer side, provide an opening either on left/right side or on the service side to place an air grill.

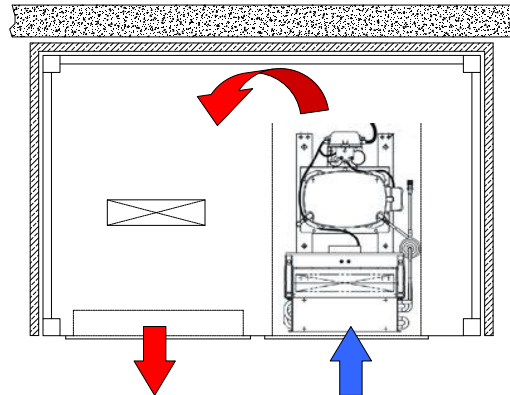
Variation 1:

Air flow directly through the condensing unit (and the counter) in straight line forward..



Variation 2:

Air inlet and hot air discharge on the same side (rear ventilation)



Whichever option is chosen, please take care that only cold air from the room gets drawn into the condenser unit and no warm recycled air is drawn back into the condenser!.

For option 1 (free flow in one line) we recommend to make a tunnel (wood or metal) to lead the hot air out of the condenser unit. If the solution with air discharge on customer side is not possible, you can choose option 2 (rear ventilation) with air inlet and hot air discharge on same side. An additional fan can help to expel hot air out of the counter.

Distance between inlet and discharge openings (Variation 2) should be as wide as possible to avoid re-circulation of hot discharge air!

Please take care that the inlet/outlet openings for the air-in and air-discharge are wide enough and are NEVER blocked! No brake or obstruction of the air flow at any time. The condenser of a cooling system works as a heat exchanger and has to transfer the thermal energy of food/drinks and the electrical power consumption of the compressor to the ambient air.

Protection of the condenser: Air grills or a stainless steel filters protects the coil against dust, fatty air and damage. It further prevents injury as the condenser fins are very sharp!



Air grills with small perforation or louvers with narrow blades can increase air resistance. So please use appropriate air grills. Minimum size of air grills: twice of surface area of the condenser!



Ventilation openings (air-in and discharge) are never blocked!
Refrigeration capacity will be reduced dramatically and the compressor could be destroyed.

2.8. Calibration of the sensor

Each installation and start-up requires control and eventually a correction of the actual value correction after 2 to 3 hours runtime.

Why? Temperatur is measured before the evaporator coil (return air), this value is sometimes different to the average temperature inside the cabinet, depending on the conditions of the location.

Factory setting was done for 25 °C room temperature. According to different ambient conditions there are many influences to the installed refrigerated equipment. With this parameter H12 it is possible to correct actual value deviations caused by sensor tolerances, very long sensor cables or surrounding conditions. of the location.

Sample: Sunshine, heating sources or raised room temperature causes higher temperatures inside the cabinet than shown on the digital display.

Sample: Conditioned rooms (about 22 °C) causes lower temperatures inside the cabinet than shown on the digital display.

Which temperature is inside the cabinet?

Place some thermostats on the shelves and measure the actual temperature inside the cabinet. Compare the measured temperature with the value shown on the digital display and adjust the Parameter H12 (see programming instruction).

Sample.: Average temperature measured inside the cabinet is: +7 °C, the digital display shows +4 °C, increase actual value correction by +3.

Sample: Average temperature measured inside the cabinet is: +3 °C, the digital display shows +5 °C, decrease actual value correction by -2.

ATTENTION: Do not measure temperature during defrost mode!
(air temperature will raise up, but product temperature remains unaffected)

2.9. Maintenance

How to change the fluorescent light tube

Space inside the stainless steel lights housing is limited - so we recommend to remove the whole lighting fixture for replacing the fluorescent tube (standard T5 lamps) - see also: Replacment of the lighting fixture on next page.

Caution: DO NOT service the lights, without isolating the cabinet at the main switch or unplugging it from the power socket!



Remove the plastic diffuser from the lighting fixture to access the fluorescent tube.



Spin the fluorescent tube to see the electrical contacts, pull away the contacts from each end of the sockets to release it. Insert the new tube and fix it correctly.



Re-fit the plastic diffuser and install the lighting fixture inside the s/s lamp housing.

TEST: Turn the power on and test that the lights operate. If normal operation cannot be restored, by changing the tube, call an electrician.

Cold display cases

3. Maintenance and Service

Replacment of the lighting fixture

Instruction for replacing a complete fluorescent lighting fixture (lamp holder with built-in electronic ballast and bulb).



Before replacing the lighting fixture, isolate the display case from the mains or unplug it from the power socket.



Free the screws from the lighting housing to loose the clips incl. lighting fixture. Do not drop the lighting fixture.



Unplug the lamp and take out the lighting fixture with clips.



Screw the clips into the lighting housing again.



Plug in the new lighting fixture and press it into the clips until it locks.



Turn the power on and test that the lights operate. If normal operation cannot be restored, call an electrician

Removing (hang out) sliding doors



Slide the left door in the middle position. Now lift up the door so that you can feel some indentation (slide the door easily to the left and right side)



Lift the door until it is released from the small bracket (steering plate) on the installation frame.



Tilt the sliding door and disengage the door from the guide rail on top.



Repeat this process also with the right door.



For re-fitting the sliding doors first start with the right door and slide it into the guiding rail. On the picture you can see the opening in the guiding rail for the roller of the doors.



Slide the doors back and forth so that you can hang the door into the guiding rail.



Lift the door to suspend it into the small bracket.



Repeat this process also with the left door.

3.1. Service notes

In order to guarantee efficient operation of the refrigerated display case along with optimum presentation of the goods, the entire technological equipment has to be checked and maintained regularly.

Service and maintenance, troubleshooting

- Prescribed adjustment, service and inspection work is to be completed timely by the manager or if necessary by an authorized service technician.
- The operating personnel are to be informed before the beginning of the maintenance and service work.
- The unit is to be disconnected from the mains before maintaining, inspecting and repairing is performed; the main switch is to be guarded against unintended reclosing.
- Check all screw connections for tight fitting.
- After finishing maintenance check all safety devices for proper functionality.

Following actions can be done by the operator:

- complete cleaning of the entire refrigerated well
- checking the ventilator for functionality
- checking the temperature of the cabinet and of the goods
- checking and cleaning the drainage lines and drip water evaporation
- cleaning the condensers on the cooling unit periodically



The condenser coil must be clean all the time (regular cleaning). A dirty condenser is the main cause of refrigeration overheating, burnout compresso and poor cooling levels !

Following actions can be done by the service technician:

- checking the thermostat setting
- checking the amount of refrigerant
- security check of the unit

3.2. Spare parts

- For spare parts please contact the responsible company for the display case. Spare parts could also be ordered from specialized dealers in close vicinity to you.
- Name plates are on every of our products. They are placed on the underside of the electric controller box or sidewise of the produkt. Please give this information of the name plate to your specialized dealer.
- Very important is the model name and the serial number or date of manufacturing.

Sample: Model name: Gastro GE-80-53-E
 Serial number: 419001_EU331050_001

The serial number consists of: / | \
 Confirmation Article. Quantity of units per order position

4. Programmable digital refrigeration controller

4.1. Programming instruction – Refrigerated display cases

Control unit: Product and programming description



- Suitable for all cooling applications
- Defrosting mode free selectable
- Air-, electro-, hot gas defrosting
- Flexible fan circuit
- Predefined parameters (USER Level)

Product description

The microprocessor-controlled controller ST501-KU3KAR.112FP consists of a service and a separate power pack plate and is used for thermostatic temperature regulation in simple refrigerating plants. It is supplied with 230VAC and has four relay outputs as well as an exit for a DC voltage fan. The relays can be used for different functions, e.g. for a compressor, a defroster, an alarm relay, etc. (see parameters U1-U4). The two resistance sensors seize the refrigerating chamber temperature and the evaporator temperature.

Networking of the controller takes place via the ST-Bus interface.

General information



Button T1: UP

By pressing this key the parameter or parameter value is increased. A further function of the key can be set with parameters **b1**.



Button T2: DOWN

By pressing this key the parameter or parameter value is decreased. A further function of the key can be set with parameter **b2**.



Button T3: Function key

The function of the key can be set with parameter **b3**.



Button T5: SET

While SET key is pressed, the setpoint is indicated. The function of the key can be set with parameter **b5** (unchangeable in this case).



Button T6: STANDBY

The function of the key can be set with parameter **b6**. It is preset as standby key. Thus the unit can be switched on or off (no mains disconnection).

The cooling controller is generally controlled using the buttons **UP**, **DOWN** and **SET**. The standard display indicates the temperature of the cold store (actual temperature value). Press **SET** button to switch over the display to the required cold store temperature (setpoint temperature).

The setpoint temperature can only be changed by pressing buttons **SET** and **UP** or **SET** and **DOWN** at the same time. While pressing the buttons, the changing setpoint temperature is displayed. After changing the setpoint temperature and releasing the buttons, the actual temperature is displayed again. This is the standard setting method.

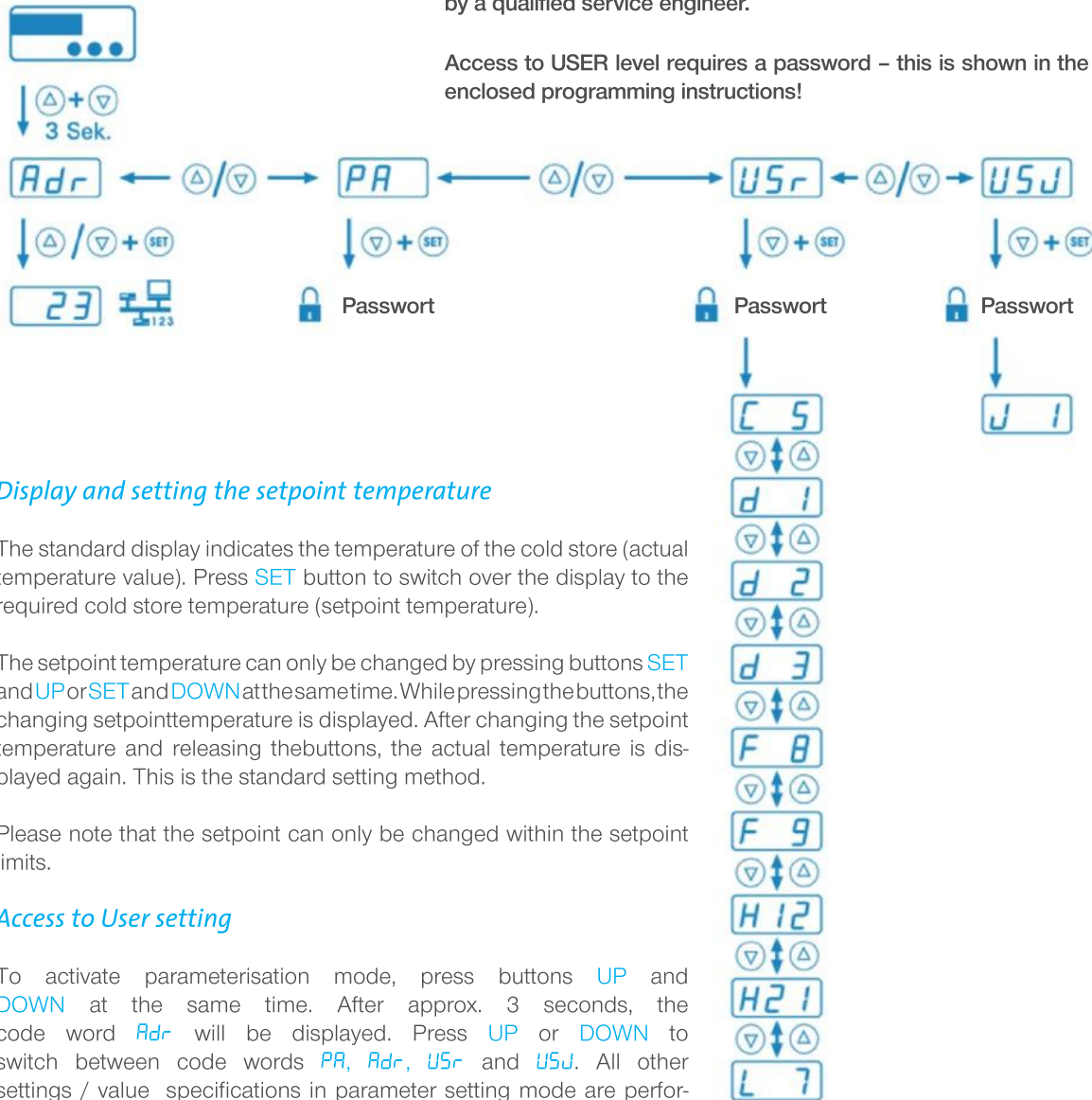
If you press the **STANDBY** button during operation (for at least 3 seconds), the cooling controller is switched off and the message **OFF** will be displayed. To switch on the controller again, press the **STANDBY** button again.

In addition to setting the temperature value, the buttons **UP** and **DOWN** perform other functions, too. Pressing the **UP** for 3 seconds will trigger a non-standard defrosting operation of the refrigerating plant. In the case of an alarm (with buzzer triggered), the **DOWN** button can be used for acknowledging the buzzer sound.

Overview of the software features

These controllers are factory set for optimum performance. If changes are required, they should only be adjusted by a qualified service engineer.

Access to USER level requires a password – this is shown in the enclosed programming instructions!



Display and setting the setpoint temperature

The standard display indicates the temperature of the cold store (actual temperature value). Press **SET** button to switch over the display to the required cold store temperature (setpoint temperature).

The setpoint temperature can only be changed by pressing buttons **SET** and **UP** or **SET** and **DOWN** at the same time. While pressing the buttons, the changing setpoint temperature is displayed. After changing the setpoint temperature and releasing the buttons, the actual temperature is displayed again. This is the standard setting method.

Please note that the setpoint can only be changed within the setpoint limits.

Access to User setting

To activate parameterisation mode, press buttons **UP** and **DOWN** at the same time. After approx. 3 seconds, the code word **Adr** will be displayed. Press **UP** or **DOWN** to switch between code words **PA**, **Adr**, **USr** and **USJ**. All other settings / value specifications in parameter setting mode are performed using the default value setting method, i.e. pressing buttons **SET** and **UP** or **SET** and **DOWN** at the same time.

To offer an easy handling of the control unit, the most commonly used parameters are collected in the **USER** level.

USr USER LEVEL

By selecting code word **USr** and entering the correct password, a list with predefined parameters is opened.

These parameters are: **C 5**, **d 1**, **d 2**, **d 3**, **F 8**, **F 9**, **H 12**, **H 2 1** and **L 7**

Cold display cases

Description of functions

US USER LEVEL

c5 Control circuit 1: Hysteresis

In this parameter, you can specify the control hysteresis.

A small hysteresis enables exact control, but will result in frequent switching of the relay.

d1 Defrosting interval

The defrosting interval defines the time after which a defrosting operation is started. Once the defrosting operation is triggered, the defrosting interval starts again. A defrosting operation can also be triggered by pressing the **UP** button („manual defrosting“) for at least 3 seconds or another parameterised button. Via the internal week timer, defrosting can also be started in real time. Once switched on, the controller starts refrigeration immediately and will trigger the first defrosting operation as soon as the time set in **d1** has elapsed. If [**d1** != 0], no automatic defrosting operation will be performed.

d2 Defrosting mode

In this parameter, you can define if defrosting is to be performed and, if yes, how it is to be performed.

You can choose among simple shut-down of the compressor, defrosting by electric heating or by hot gas.

Electric defrosting will always be performed after a compressor break, defined in **d9**. Hot gas defrosting will always be performed directly after a refrigeration phase. Additionally, you can define via parameters **d7** and **d8** if the cold store temperature is to be lowered before defrosting.

d3 Defrosting temperature

A defrosting operation is complete as soon as the temperature set here is reached at the evaporator.

If the defrosting operation is not completed within the time set in **d4**, it will be stopped.

F8 Fan speed in control mode, Set1

Fan speed in normal control mode and active Set1

F9 Fan speed during defrosting, Set1

Fan speed during defrosting and active Set1

H12 Calibration of sensor F1 actual value correction

With this parameter it is possible to correct actual value deviations caused by sensor tolerances, very long sensor cables or structural protections (e.g. ex-barriers), for example. The value defined here is added to the measured value.

H21 Actual value sensor F1

The temperature value shown here is used for control. It is calculated as follows:

Actual control value = (actual measured value * weighting factor) + actual value correction

Actual value correction and weighting factor must be defined in the following parameters. This corrects actual value deviations in special applications (refrigerated shelves or similar) due to unfavourable sensor location.

L7 Display in standby mode

In this parameter, you can define what is to be displayed in standby.

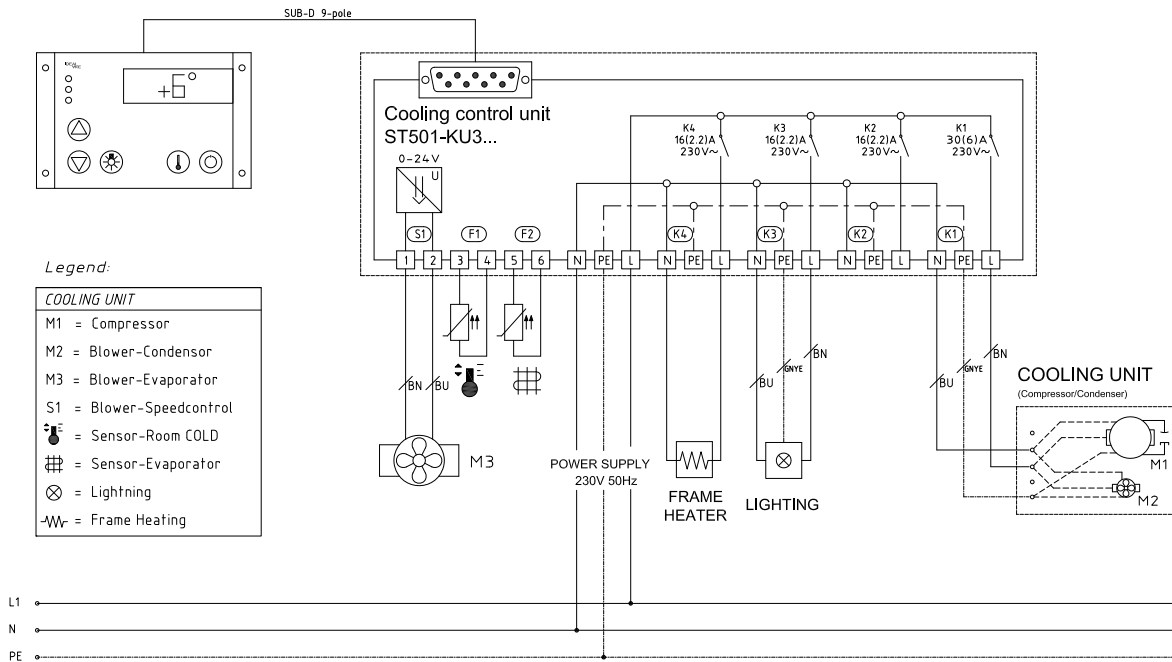
USJ Pre-defined parameter sets

J1 Internal: active data set

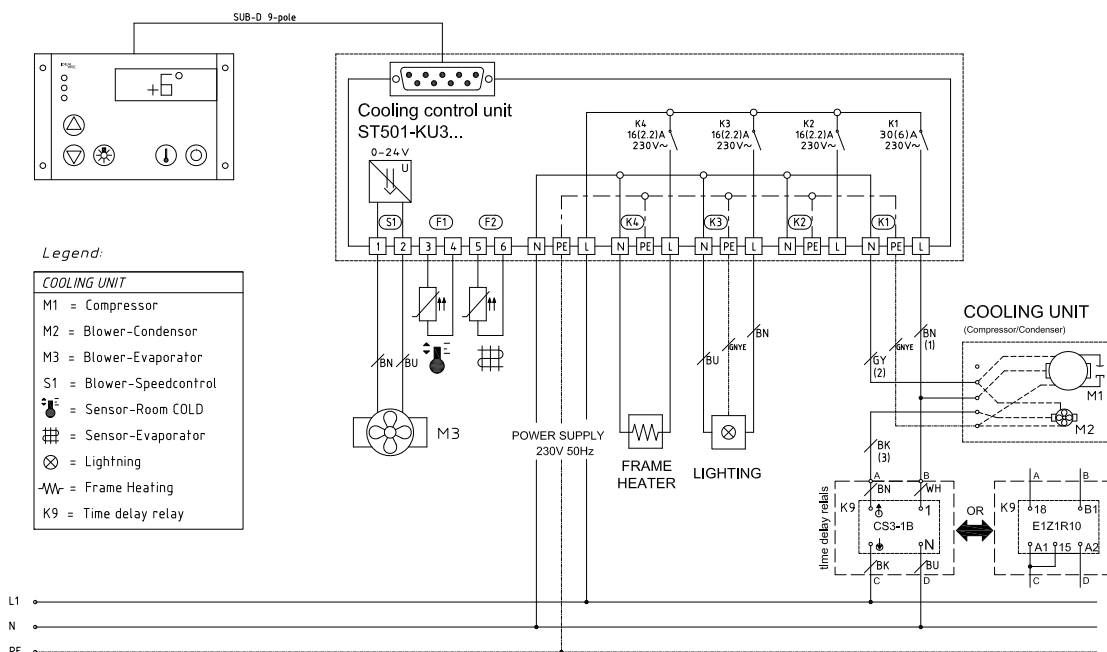
With this parameter, you can set up pre-defined data sets. The data sets are provided by Störk-Tronic. If a new data set is loaded, all previously set parameters will be overwritten. After that, they can be edited as required.

5. Schematic circuit diagram

Wiring diagram: *Display cases – self contained without time delay relay*
Gastro, Gastro HCG, BAK and Green models



Wiring diagram: *Display cases – self contained with time delay relay*
Gastro, Gastro HCG, BAK and Green models

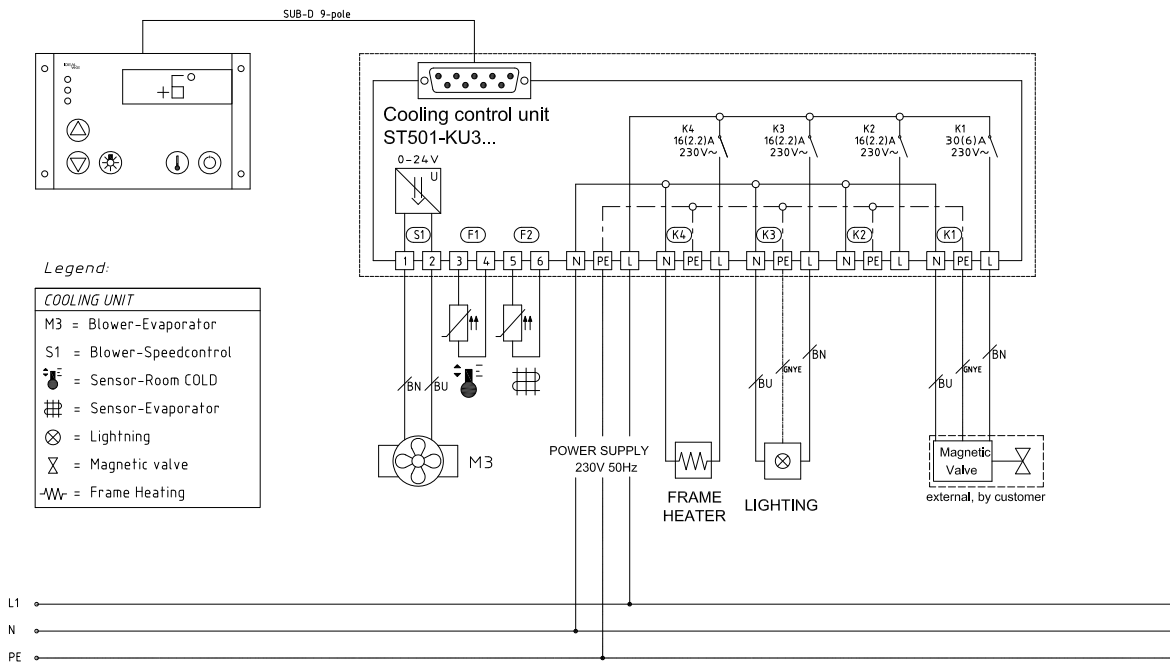


Cold display cases

Wiring diagram:

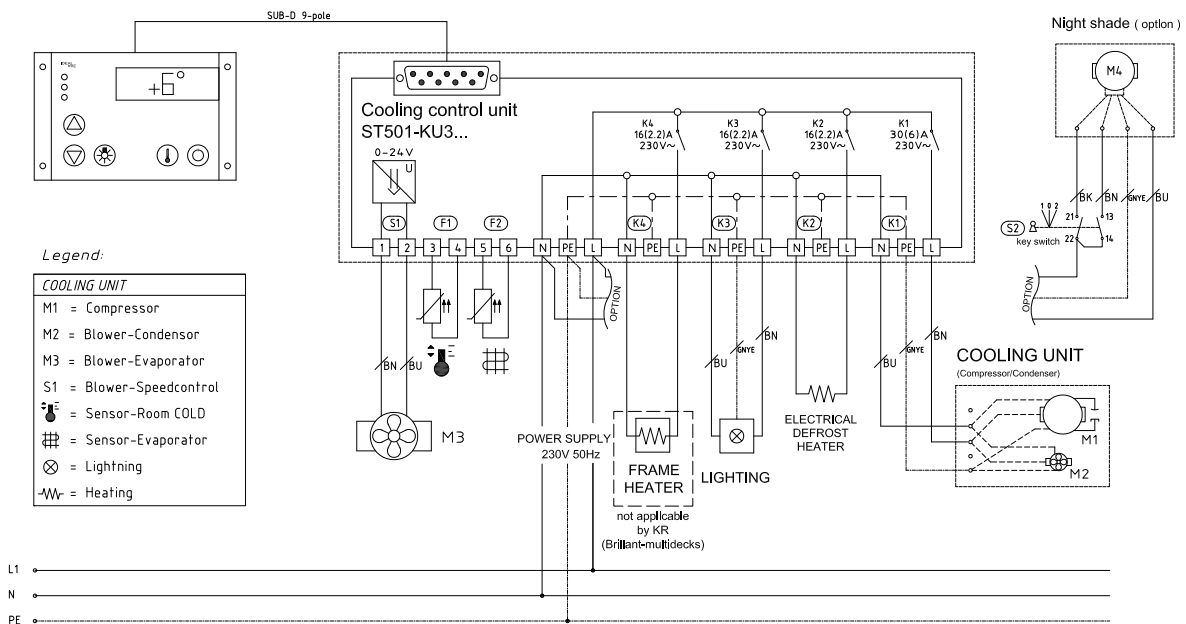
Display cases – remote refrigerated

Gastro, Gastro HCG, BAK and Green models



Wiring diagram:

Display case HCO and KR – self contained without time delay relay



Technical information



Part B



6. Declaration of conformity



DECLARATION of CONFORMITY

Confirming the EC directives 2006/95/EG and 2004/108/EG

Company

Ausseer Kälte und Edelstahltechnik GmbH
8984 Kainisch, Pichl 66, Austria

We herewith declare under our sole responsibility that the AKE product REFRIGERATED DISPLAY CASES

types designated as

Gastro O-53, O-70, O-87
Gastro G-53, G-70, G-87
Gastro G-53 KL, G-70 KL, G-87 KL
Gastro A G-53
BAK G-53, BAK G-70
BAK L, BAK KSL, Gastro KSV
HCO-70, HCO-87, HCG-87

Green A
Green G-54, G-71, G-88
Green (M1) O-53, O-70
Green L G-52, L G-69
Green KSL G-144
Green KSV G-144
BRILLANT KR

which is covered by this declaration, meets all safety and health provisions of the EC directives **2006/95/EG** (Low-voltage directive) and **2004/108/EG** (Electromagnetic compatibility EMC directive). These directives represent legal binding laws of the European Union for electrical equipments.

To meet all safety and sanitation EC directives we fully comply with all applicable requirements of the following international and national standards:

EN 378-1
EN 378-2
EN 12263
EN 12284
EN 50081-1
EN 55014-1
EN 55014-1:A1
EN 55014-2
EN 55015
EN 55022
EN 60204-1
EN 60335-1
EN 60335-2

EN 60529
EN 60598-1
EN 60598-2-1
EN 60730-1
EN 60730-2-1
EN 60730-2-9
EN 60947
EN 60950-1
EN 61000-3-2
EN 61000-3-3
EN 61000-3-11
EN 61000-4-2

EN 61000-4-3
EN 61000-4-4
EN 61000-4-5
EN 61000-4-6
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EN 61000-6-1
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Andreas Pilz
Managing director

