

**EBAC MODEL PD220-D – 220V  
INDUSTRIAL DEHUMIDIFIER  
OWNER'S MANUAL**



**www.eipl.co.uk**



## SAFETY INFORMATION

### READ AND SAVE THESE INSTRUCTION

Children shall not play with the appliance.

This appliance can be used by children from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the application in a safe way and understand the hazards involved.

Cleaning and user maintenance shall not be made by children without supervision.

If the SUPPLY CORD is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid hazard.

If the appliance is switched off at the mains power supply for any reason, the unit must be allowed to stand at rest for at least three minutes before restarting.

Due to the high pressures within the refrigeration circuit, under no circumstances must direct heat be applied to the evaporator coil in an attempt to remove the build-up of ice.

No attempt should be made to cut open any part of the refrigeration circuit due to high pressures and gas involved.

If the appliance is switched off at the mains power supply for any reason, it must be allowed to stand at rest for at least three minutes before restarting. Failure to do so may cause the appliance to blow the fuses owing to the compressor due to there being a refrigerant imbalance.

The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows:-

R32 - 675

R290 - 3

R454c - 148

For type and weight of refrigerant contained in this appliance, please refer to the product data label

Do not insert objects into any of the grilles on the machine.

Do not cover or obstruct airflow from the grilles.

Do not operate the unit with the covers removed

Do not stand on the unit

Do not attempt to lift heavy units unassisted.

Do check the plug on the unit matches the supply.

Do check the supply cord and power supply are earthed correctly

Do check the voltage selection before attempting to power up the unit (This is for dual voltage units only).

Do use a residual current device "RCD" where possible



The appliance uses R32 refrigerant gas. This gas is much kinder to the environment as it is non-toxic with zero Ozone Depletion Potential (ODP). This is a flammable gas and the following warnings should be considered:

- The appliance uses a flammable refrigerant (see unit serial plate for charge quantity). It is therefore part of a sealed system and **any servicing should only be carried out by EIPL service personnel.**
- Do not pierce / burn / puncture the appliance at any point, even when disposing of. Before disposing all refrigerant should be evacuated and disposed of as required by local environmental laws.
- If there is any damage to the appliance, DO NOT USE and contact EIPL.
- The appliance must not be used in a potentially explosive atmosphere.
- The appliance must not be used in an aggressive atmosphere e.g. chemical environments.
- The appliance must not be used in a high dust environment.
- The appliance must not be used in a high solvent concentration atmosphere.
- The appliance shall be installed, operated and stored in a room with a floor area not less than 17 m<sup>2</sup>
- Do not use the appliance in a room with any continuous source of ignition e.g. open flames or gas fires.
- R32 is an odourless gas.
- Anyone who does work on the refrigeration circuit must have the appropriate qualifications / certification issued by a national accredited organisation to ensure competence when handling flammable refrigerants.
- Any parts to be replaced within the appliance should only be replaced with EIPL approved parts.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example open flames, an operating gas appliance or an operating electric heater).

## GAS DETECTION

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) must not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks. Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at 25% of the LFL of the refrigerant and must be calibrated to the refrigerant deployed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe work.

## PD120-D

### PACKAGE CONTENTS

Item	Description	Quantity
10157GY-US	Dehumidifier	1
3014338	PVC tube – 12mm I/D	3M
3086101	Jubilee clip	1
3037866	6 Pin Plug	1
TPC638	Manual	1

## UNPACKING

Carefully remove the PD220-D dehumidifier unit from its transit box and visually check for signs of transit damage. If there is evidence of damage DO NOT attempt to operate the unit, call your supplier for advice. Do not discard the packing, it will be useful when transporting the dehumidifier unit in the future.

## INTRODUCTION

The Ebac PD220-D industrial dehumidifier removes moisture from the air through the refrigeration process.

The Ebac PD220-D is basically comprised of:

- 1) A compressor
- 2) A refrigerant evaporator coil
- 3) A refrigerant condenser coil
- 4) One circulation fan
- 5) A humidistat
- 6) A cabinet to house the above components

The fan draws the moist air through the cold evaporator coil which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is therefore discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than with which it entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions.

The dehumidifier uses an internally mounted adjustable humidistat to enable you to select the level of dryness.

The unit can also be used with an external humidistat or the EIPL touch display panel (via the 6 pin connector) to control the level of dryness.

## SPECIFICATIONS

<b>MODEL:</b>	Ebac PD220-D
<b>HEIGHT:</b>	17.5" (443mm)
<b>WIDTH:</b>	27.5" (700mm)
<b>DEPTH:</b>	26" (660mm)
<b>WEIGHT:</b>	168 lbs (76Kg)
<b>AIRFLOW:</b>	664 CFM (1130 M3/hr)
<b>POWER:</b>	2.1 KW
<b>POWER SUPPLY:</b>	220V / 60Hz / 1ph
<b>FINISH:</b>	Powder-coated Epoxy
<b>REFRIGERANT TYPE/QTY:</b>	R32 / (See unit rating label for quantity)

## INSTALLATION

### POSITIONING:

Position the dehumidifier unit in the center of the room to be conditioned if at all possible. However, if a damp patch is particularly apparent the outlet grille should be pointed towards it if possible.

This unit can also be used in a duct system where applicable, please see the diagrams on the following pages which identify the overall sizes of the unit and also the mounting points.

Connect the drainage outlet to a suitably sized hose and run the hose to a permanent drain.

Connect the unit power cable to a grounded power source.

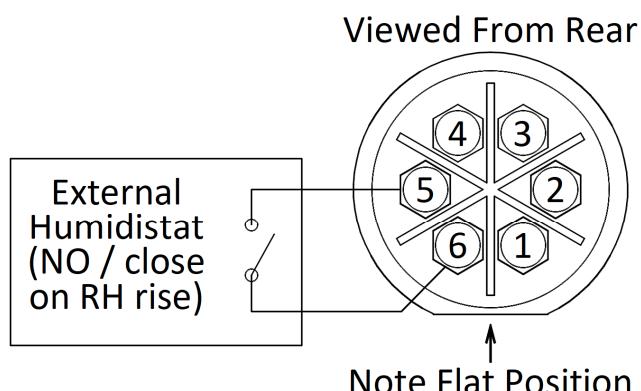
### NOTE:

Both inlet grille and outlet grille of the dehumidifier unit must have clear space around them and not be obstructed in anyway. For correct installation and operation, the unit inlet and outlet must have a clearance of 0.5M from all adjacent surfaces and or structures.

### Optional Control Methods

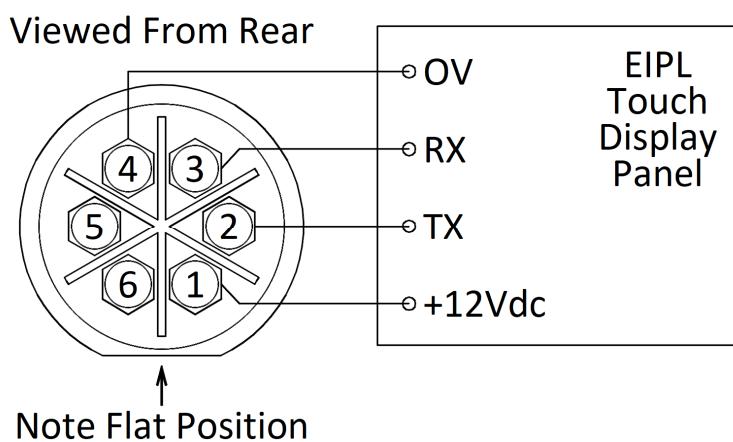
#### 1. External Humidistat

- Connections for an external humidistat are available on the 6 pin connector above the main isolator.
- The remote humidistat should have a normally open set of contacts which close on humidity rise.
- This connection is low voltage low current, suggested cable specification 2 core 16/0.2 (0.5mm) screened cable.
- Connection is across pins 5 and 6 of the 6 pin connector
- The Jumper on the main control board should be removed from position "E" to allow this feature to operate.

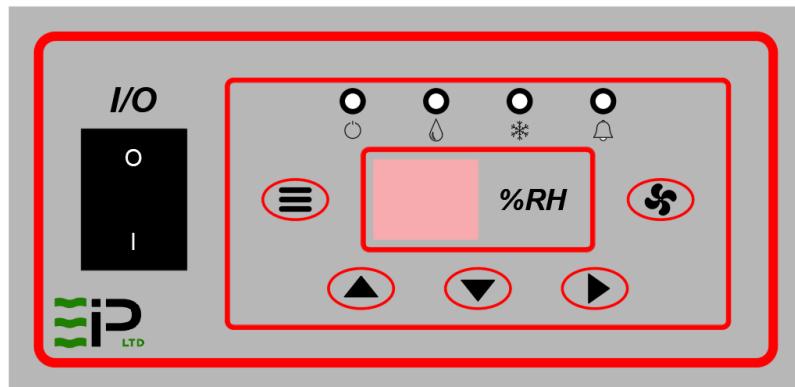


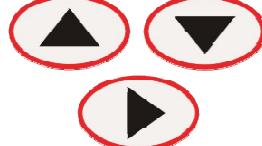
## 2. EIPL Touch Display Panel

- RS232 connections for the EIPL touch display panel are available on the 6 pin connector above the main isolator.
- Suggested cable specification 4 core 16/0.2 (0.5mm) screened cable.
- Connection details:-
  - Free Socket - Pin 1 - +12Vdc
  - Free Socket - Pin 2 - TX
  - Free Socket - Pin 3 - RX
  - Free Socket - Pin 4 - 0V



## OPERATION



Button / Legend	Function	Description
I / O	On / Off	Turns the unit on and off
	Menu	Cycle through menu options and adjust the desired set point. See below for list of menu options
	Recirculation	Select recirculation fan or dehumidification mode
	Navigation	Adjust the humidity set point UP/DOWN and enter to confirm

Indicator	Function	Description
	ON/OFF	Green – On
	Drying / Recirculation	Blue – Flashing – Drying Required Blue – Solid – Drying On Green – Solid – Recirculation Mode (Fan Only)
	Defrost	Yellow – Flashing – Defrost mode selected Yellow – Solid – Defrosting in progress
	Alarm	Red – Solid – Fault - High RH

## Menu Options

Pressing the Menu button cycles through the following pages of information.

Menu Options when dehumidifying mode is selected

Menu	Display	Information
1	Set RH	Using the Up / Down Keys adjust the humidity to the desired set-point, pressing the Enter key to accept and save.
2	Temperature	Indicates the current room temperature.
3	Coil Temp	Shows the current coil temperature. (< -9degC display “—”)
4	Time To Start	Displays the time to start drying (mins) or “on” if already drying
5	Time To Defrost	If defrost mode is selected, this option shows the remaining time until defrost will occur. The yellow defrost light will be flashing indicating a defrost is required.
6	Time In Defrost	If defrost is currently occurring, the yellow defrost light will be solid, and the display will show the time remaining before defrost ends. Defrost not required or active the display will show “—”
Notes on Time values above		
2 digits no decimal point indicates a time > 10mins		
2 digits with a decimal point indicates mins and tenths of a min, ie 8.5 = 8mins 30 secs		

Menu Options when recirculation mode is selected

Menu	Display	Information
1	Humidity	Indicates the current room Humidity.

## Operation

Plug the unit into a suitable wall socket and power on.

Set the I / O switch to ON.

Note the Power On Indicator shows Solid Green.

To prevent the compressor starting too quickly after being powered down, there is an inbuilt compressor off timer. This delayed start prevents the compressor from restarting for 6 minutes after being switched off. Note this feature is reset when the isolator is set to OFF or power is removed from the unit.

The dehumidifier remembers the last mode of operation, and also the previously adjusted set point.

Once the dehumidifier is started, the drying / recirculation light will indicate the selected mode or operation.

Adjust the mode, as required. (Recirculation or Drying).

In drying mode, the display will show the room humidity level.

In recirculation mode the display shows the current room temperature.

Using the Menu Key cycle through the menu options to the Set RH page, using the up/down and enter keys adjust the humidity to the desired level.

The dehumidifier will now self-regulate to maintain the desired humidity level. The unit will automatically defrost as needed. In warmer climates defrost is not required, allowing the dehumidifier to continually dry.

**If, after carrying out the above procedures, the appliance does not appear to function properly, refer to the *Trouble Shooting* section, which follows, or contact EIPL.**

## ROUTINE SERVICE

**WARNING:** ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE SERVICE. THE SERVICING AND REPAIR OF THIS UNIT SHOULD ONLY BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON.

To ensure continued full efficiency of the dehumidifier, maintenance procedures should be performed as follows:

1. Clean the surface of the evaporator and condenser coils by blowing the dirt out from behind the fins with compressed air. Hold the nozzle of the air hose away from the coil (approx 6") to avoid damaging the fins. Alternatively, vacuum clean the coils.

**WARNING:** DO NOT STEAM CLEAN REFRIGERATION COILS.

2. Check that the fan is firmly secured to the motor shaft and that the fan rotates freely. **The fan motor is sealed for life and therefore does not need oiling.**
3. To check the refrigerant charge, run the unit for 15 minutes and briefly remove the cover. The evaporator coil should be evenly frost coated across its surface. At temperatures above 70°F, the coil may be covered with droplets of water rather than frost. Partial frosting accompanied by frosting of the thin capillary tubes, indicates loss of refrigerant gas or low charge.
4. Check all wiring connections.

**IF ANY OF THE PRECEDING PROBLEMS OCCUR, CONTACT THE EBAC SERVICE CENTER PRIOR TO CONTINUED OPERATION OF THE UNIT TO PREVENT PERMANENT DAMAGE.**

## TROUBLESHOOTING

<u>SYMPTOM</u>	<u>CAUSE</u>	<u>REMEDY</u>
<b>Unit inoperative</b>	1. no power to unit	1. Check the power from the power supply panel
<b>Little or no airflow</b>	1. Loose fan on shaft 2. Fan motor burnt out 3. Dirty refrigeration coils 4. Loose electrical wiring	1. Tighten fan 2. Replace the fan motor 3. See <i>Routine Maintenance</i> Section 4. Check the wiring diagram to find fault and repair
<b>Little or no water extraction</b>	1. Insufficient air flow 2. Compressor fault 3. Loss of refrigerant gas	1. Check all of the above 2. Contact the Factory Service Center 3. Contact the Factory Service Center
<b>Unit vibrates excessively</b>	1. Loose compressor mounts 2. Damaged fan	1. Tighten the nuts on the compressor mounts 2. Replace fan
<b>Water flooding inside the machine</b>	1. Drain pipe blocked/frozen 2. Drain pipe too high	1. Clear the obstruction 2. Ensure that no section of the drain hose is above the level of the water outlet

## SPARE PARTS LIST

Description	Part Number
Product Part Number	10157GY-US
Humidity Sensor PCB	1619526
PCB Timer	1619531
Controls Display PCB	1619536
Evaporator Coil	2015026
Condenser Coil	2015027
Filter	2015028
Keypad Label	2015059
Coil Bracket Blanking Foam	2018724
Capillary Tube	3014252
10mm ID insul tube	3014301
5/8" ID insul tube	3014303
Sponge Seal 16mm x 22mm	3015106
Inseal tape 15mm wide x 3mm thick	3015109
Inseal tape 50mm wide x 3mm thick	3015124
Reversing Valve	3020834
Filter Dryer	3020957
Pressure Stat	3021154
Solenoid Coil	3030454
Mains Cable	3031202
Terminal Block	3031403
12.5mm Open Grommet	3032104
25mm Open Grommet	3032111
M16 Cable Gland	3032511
M16 Gland Nut	3032512
Cable Tie Base	3033998
Coil Sensor	3035142
Humidity Sensor Housing	3035164
PCB Jumper Socket	3035834
ON / OFF Switch	3035914
6 Pin Socket	3037865
6 Pin Plug	3037866
Fan Wheel	3040247
Fan Inlet Ring	3040248
No.10 x 5/8" Screw	3084095
Jubilee Clip	3086101
PCB Mounting Pin	3101413
Solid State Relay	3931322
Light Pipe Lens	3931732
Compressor Capacitor	3933512
Mains Plug	3934516
PCB Connecting Cable (300mm)	3934519
PCB – Plug Cable	3935428
PCB Connecting Cable (900mm)	3935433
M5 Serrated Washer	3942926
Condensate Drain Tube	3944115
Compressor	3944949
Fan Motor	3947037

**UK Head Office**

Ebac Industrial Products Ltd  
St Helens Trading Estate  
Bishop Auckland  
County Durham  
DL14 9AD

Tel: +44 (0) 1388 664400  
Fax: +44 (0) 1388 662590

[www.eipl.co.uk](http://www.eipl.co.uk)  
[sales@eipl.co.uk](mailto:sales@eipl.co.uk)

**American Sales Office**

Ebac Industrial Products Inc  
700 Thimble Shoals Blvd.  
Suite 109, Newport News  
Virginia, 23606-2575  
USA

Tel: +01 757 873 6800  
Fax: +01 757 873 3632

[www.ebacusa.com](http://www.ebacusa.com)  
[sales@ebacusa.com](mailto:sales@ebacusa.com)