Drawing	: - TPC 598
Issue	: - 2
Date	: - 26/11/24

DD400

INDUSTRIAL DEHUMIDIFIER

OWNER'S MANUAL

www.eipl.co.uk

UNPACKING

Carefully remove the DD400 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

Dehumidifiers remove moisture from the air that is circulating through the unit. The resulting reduction of relative humidity helps prevent rust, rot, mould, mildew and condensation within the room, or other enclosed spaces where the dehumidifier is used.
The DD400 is of the desiccant wheel type designed to dry air by passing a large volume of air, the “process” air through a slowly rotating Silica gel rotor. Silica gel is a hygroscopic material that absorbs moisture direct from the air. As the air passes through the rotor the humidity of the air is reduced, whilst the moisture content of the rotor is increased. A smaller volume of air, the reactivation air, is heated by an internal heater and passes through a portion of the rotor in the opposite direction. As this heated air passes through the rotor it will “reactivate” it by removing the moisture content from the silica gel material. The reactivation air will leave the humidifier as warm, moist air and must be vented to outside of the building.

Continuous circulation of the room air through the dehumidifier unit gradually reduces the relative humidity in the room.

The DD400 dehumidifier is a robust, compact unit designed to control the humidity in the enclosed space in which it is placed. The casing is fabricated from Stainless Steel 304 and has been designed for the exacting conditions which can prevail in offices, shops, houses, restaurants, public houses etc. It combines lightness and compactness with high reliability and strength. Carry handles are provide to contribute to its portability.

The unit is thermally protected and will switch off if the maximum operating temperature of 40ºC is exceeded.

The dehumidifier has two separate filters. One in the “process” air inlet and one in the “reactivation” air inlet, used to clean the air entering the dehumidifier.

SPECIFICATIONS

MODEL:	DD400
HEIGHT:	420mm
WIDTH:	400mm
DEPTH:	540mm
WEIGHT:	27 Kg
DRY AIRFLOW:	370 M^3/HR
WET AIRFLOW:	150 M^3/HR
POWER SUPPLY:	230V, 1 ph, 50Hz
POWER	2.2 kW (max)
FINISH:	Stainless steel 305
DEHUMIDIFICATION CAPACITY (AT 28°C AND 60% RH)	34 lt/day
NOISE	67dB(A)

INSTALLATION

POSITIONING:

The DD400 is designed for indoor use. Position the dehumidifier unit in the center of the room to be conditioned if at all possible.

NOTE: Both the air inlets and outlets 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

DUCT CONNECTION

The wet air outlet from the dehumidifier must be exhausted to outside of the room being dried by means of a suitable duct. All duct connections to the dehumidifier have been designed for connections to standard size ducts.
The duct should be as short as possible to reduce the risk of condensation of the wet air. The duct should slope downwards away from the unit to stop any condensed water from flowing back into the unit.

The dry air outlet is also provided with a means of attaching a duct. This can be used to direct the air towards more severe damp patches.

WIRING:

-WARNING-
THIS APPLIANCE MUST BE EARTHED

The DD400 is provided with a standard plug and is designed to operate from a 13 Amp supply.

IMPORTANT – The wires in the mains lead are coloured in accordance with the following code:

GREEN & YELLOW……EARTH
BLUE……..NEUTRAL
BROWN……LIVE

If the supply cord is damaged it must be replaced by qualified Ebac Industrial Products Ltd personnel or other similar qualified persons in order to avoid hazard.

OPERATION

The electrical controls are located on the front of the unit. They are:

- ON / OFF Switch

  0 Dehumidifier OFF

  I Dehumidifier ON

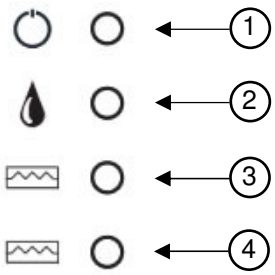
- Humidity Switch

  M Dehumidifier in continuous operation

  A Dehumidifier operation by means of an external humidistat

- An ammeter is provided to display the current used by the unit.
- An hour counter is provided to display the total time the unit has been in operation
- A socket is provided for connection of a external humidistat
- Light Functions:

  The unit has four LED indicators, located on the front of the unit. The following lists the functions of these lights:



1 – ON / OFF
Green solid – Indicates power ON

2 – DRYING
Blue solid – Indicates drying selected

3 – HEATING
Green solid – Indicates heater bank 1 ON

4 – HEATING
Green solid – Indicates heater bank 2 ON

To start the dehumidifier, turn the On / Off switch to position I.
Turn the humidity switch to position M.
After a slight delay the fans will operate – air can be felt blowing from the air outlets and the heater will come on.
The unit will operate continuously at this setting.

Note. The DD400 is controlled by an electronic circuit board and uses dual PTC (positive temperature coefficient) heater technology to provide the heat necessary to “reactivate” the rotor. To ensure safe start up, the heaters are switched on in stages – the first heater is switched on at start up and the remaining heater switched on after a brief delay.
At switch on, the ammeter will initially show a higher current for a few seconds, prior to settling to a steady value. This is normal. After the brief delay the ammeter will again show an increased value as the second heater is switched on. This is normal.

If an external humidistat control is fitted, turn the humidity switch to position A. Depending on the setting of the humidistat, the dehumidifier may switch off as the relative humidity in the room decreases. As the humidity increase the unit will automatically switch back on.

The Humidistat plug supplied should be wired using pins numbered 1 & 2.
Pin 3 is not required. See diagram 5010307 at back of manual.

AIR MOVING SYSTEM:

The DD400 is a dual fan system with dedicated fans for the “Process” air and “Regeneration” air flows. As the air passes over the rotor, it will be heated as a result of the regeneration cycle. The air leaving the unit will be hotter than the air entering

During normal operation some parts of the dehumidifier may become hot. This is normal.

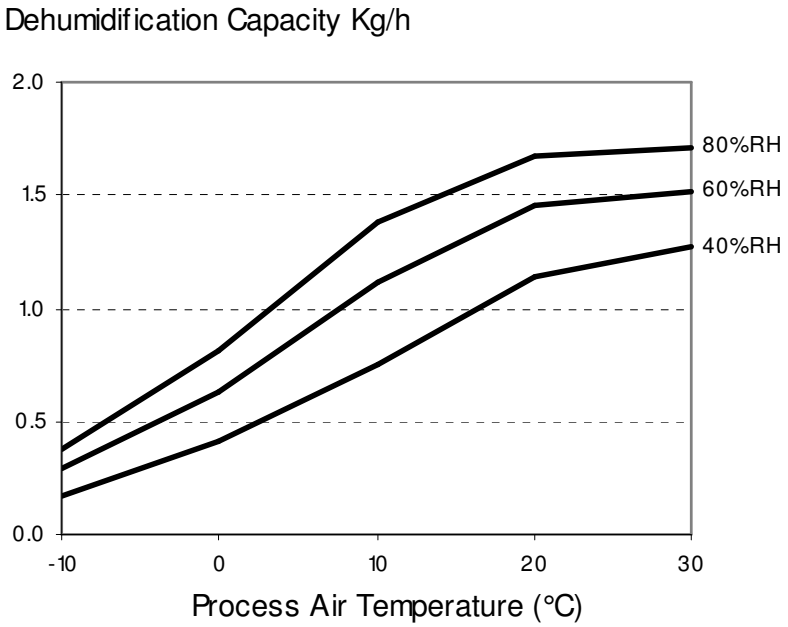
HIGH TEMPERATURE CUT OUT:

The DD400 dehumidifier has been designed to work in ambient conditions of -20ºC to +40ºC. Should the temperature in the room become excessive an overheat protector will operate, switching off the PTC heaters. The fans and drive motor will continue to operate. This is a manual reset device. Prior to resetting the protector, check that the dehumidifier is installed correctly and the ambient temperature does not exceed 40°C.

See repairs section for details on resetting device.

DEHUMIDIFICATION CAPACITY

Approximate capacity in Kg/h at different inlet process air temperature and relative humidity (%)



SAFETY

-WARNING-

- **DO NOT** ALLOW CHILDREN TO PLAY WITH OR AROUND THE UNIT. ENSURE THE UNIT IS INACCESIBLE TO CHILDREN WHEN NOT ATTENDED.
- **DO NOT** USE THIS UNIT IN AN ENVIRONMENT CONTAINING FLAMMABLE FUMES
- **DO NOT** USE THIS UNIT IF THE CABINET OR POWER CORD IS DAMAGED
- **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** ATTEMPT ANY REPAIRS SHOULD THE UNIT FAIL TO OPERATE
- **DO NOT** STAND ON THE UNIT
- **DO NOT** LIFT THE UNIT WHEN SWITCHED ON
- **DO** CHECK THE PLUG ON THE EQUIPMENT MATCHES THE SUPPLY
- **DO** USE THE UNIT FOR THE PURPOSE FOR WHICH IT WAS DESIGNED
- **DO** ENSURE THE POWER CORD AND SUPPLY IS EARTHED CORRECTLY
- **DO** USE A RESIDUAL CURRENT DEVICE “RCD” WHERE POSSIBLE
- **DO** KEEP THE UNIT DRY. NEVER USE A HOSE OR PRESSURE WASHER TO CLEAN THE UNIT.

ROUTINE SERVICE & REPAIR

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..

SWITCH OFF THE DEHUMIDIFIER APPROXIMATELY 15 MINUTES PRIOR TO REMOVING ANY PANELS, ALLOWING THE HEATER TO COOL DOWN

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

- We recommend that the filters are checked at least once a month. Intervals for cleaning or replacement of filters will depend on the installation
- Never operate the dehumidifier without the filters, as the rotor can be damaged by dust.

To carryout the following, it is necessary to remove the top cover panel.

This machine should be serviced by qualified Ebac Industrial Products Ltd personnel or other persons having technical competence in servicing electrical equipment following the instructions in this Service Manual.

- The rotor is maintenance free. However, should it be necessary to clean the rotor, compressed air should be used to carefully blow dirt from the rotor.
- The PTC heaters are maintenance free. However should it be necessary to clean the heaters, compressed air should be used to carefully blow dirt from the heaters.
- Check that the fans are firmly secured and that the fan rotates freely.
- Check all wiring connections.
- Check the belt tensioning at regular intervals. Adjust when needed by loosening the four bolts holding the drive wheel and rotating the drive motor until correct tension is achieved.
- The overheat protector is located inside the unit, towards the front, near the rotor. To reset this device press the red button.
- Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

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

TROUBLESHOOTING

SYMPTOM	CAUSE	REMEDY
Little or no dehumidification capacity	Filter clogged	Clean or replace filters
	No regeneration heat	Check PTC / OHP
	Reduced airflow	Check fans / duct
	No rotation of Rotor	Check belt tension / drive motor
	Air leakage	Check sealing
Dehumidifier does not start	No power	Check fuse
	Correct switch setting	Check Auto / Manual switch
	Loose electrical wiring	Check wiring diagram - fault find & repair
Rotor does not rotate	Drive belt slipping	Check belt tension
	Drive belt broken	Replace drive belt
	Rotor jammed	Check centre shaft, rim of rotor
	Drive motor faulty	Check supply /Replace motor
No Dry or Wet Air Airflow	Filter clogged	Clean or replace filters
	Fan faulty	Check supply / fan
	Ducts blocked	Check duct for obstruction
Low current displayed on ammeter	Low reactivation airflow	Check air path for restriction
	PTC faulty	Check PTC / OHP
Noisy	Fan loose	Check fans secured firmly
	Loose fastenings	Tighten all fastenings

SPARE PARTS LIST

DESCRIPTION	PART NUMBER
Process Air Fan Motor	3040280
Process Inlet Filter	2050029
Regeneration Air Fan Motor	3040336
Regeneration Inlet Filter	2050030
Drive Motor	3040289
Capacitor for Drive Motor	3030907
Pulley	3050569
Pulley Belt	3050566
PTC Heater	3031625
Overheat Protector	3477026
Desiccant Wheel	3020761
PCB Controller	1619522
PCB Light board	1619523
Mains Cable	2029217
On / Off Switch	3035914
Auto / Manual Switch	3030687
Ammeter	3180101
Hour Counter	3030778
Humidistat Socket	3033806
Humidistat Plug	3033807

WARNINGS

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.

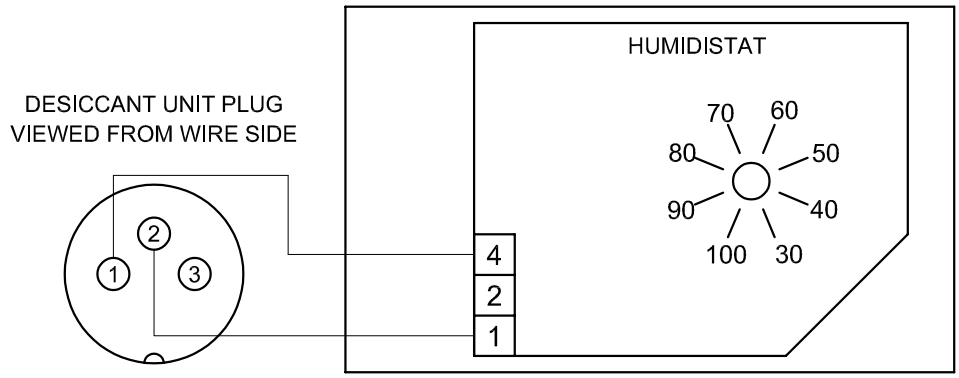
Children shall not play with the appliance.

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.

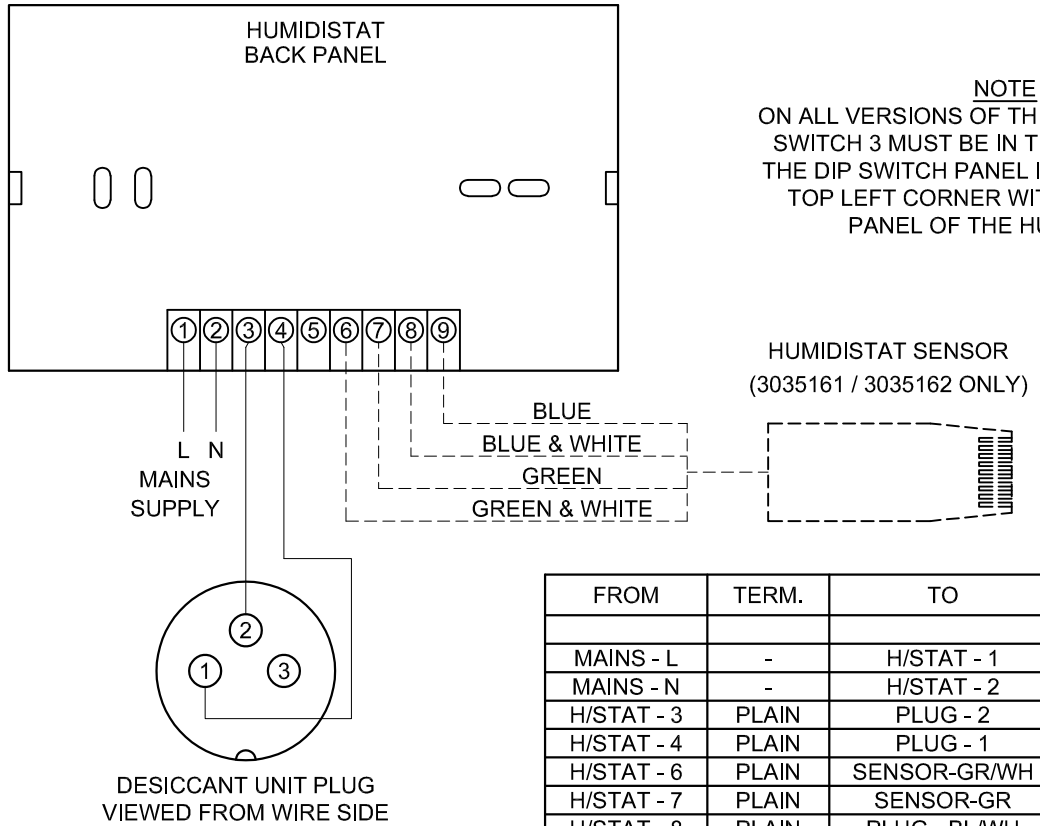
ISSUE	DATE	AMENDMENTS
2	25/02/16	DIGITAL HUMIDISTAT ADDED - WDA
3	23/03/16	DIGITAL HUMIDISTAT CORECTED - WDA
4	15/11/24	PLUG VIEW CHANGED / NOW FROM REAR - WDA

HUMIDISTAT 3035157



FROM	TERM.	TO	TERM.
H/STAT - 1	PLAIN	PLUG - 2	SOLDER
H/STAT - 4	PLAIN	PLUG - 1	SOLDER

HUMIDISTAT 3035159 - 230V (INTERNAL SENSOR)
HUMIDISTAT 3035160 - 115V (INTERNAL SENSOR)
HUMIDISTAT 3035161 - 230V (EXTERNAL SENSOR)
HUMIDISTAT 3035162 - 115V (EXTERNAL SENSOR)



NOTE
ON ALL VERSIONS OF THIS HUMIDISTAT, DIP SWITCH 3 MUST BE IN THE 'ON' POSITION. THE DIP SWITCH PANEL IS LOCATED IN THE TOP LEFT CORNER WITHIN THE FRONT PANEL OF THE HUMIDISTAT.

FROM	TERM.	TO	TERM.
MAINS - L	-	H/STAT - 1	PLAIN
MAINS - N	-	H/STAT - 2	PLAIN
H/STAT - 3	PLAIN	PLUG - 2	SOLDER
H/STAT - 4	PLAIN	PLUG - 1	SOLDER
H/STAT - 6	PLAIN	SENSOR-GR/WH	-
H/STAT - 7	PLAIN	SENSOR-GR	-
H/STAT - 8	PLAIN	PLUG - BL/WH	-
H/STAT - 9	PLAIN	PLUG - BL	-

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TITLE
DESICCANT - REMOTE H/STAT WIRING

3RD ANGLE PROJECTION
DO NOT SCALE
IF IN DOUBT ASK

DIMENSIONS IN m.m.
TOLERANCES UNLESS OTHERWISE STATED
O. ± 1
O.O ± 0.25
O.OO ± 0.05
ANGULAR ± 0.5 DEGREE

MATERIAL
N/A

FINISH
N/A

DRAWN : W. DAGLISH
CAD SCALE : N/A

DRG.NO.
5010307

SHEET
1 OF 1

A4

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