

KC2000A/D Intelligent Waveguide Dehydrator  
**User Manual**



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## 1、 Function and Summary

As one of important assistant equipments in communication system engineering the wave-guide dehydrator which is mainly used to charge for wave-guide or composed by parts of an apparatus feed line system to charge automatically in the field of microwave station、 radar station、 satellite terrestrial station and TV station. This equipment can maintain dry air pressure in the communication line automatically in order to keep out of moist air and water and ensure the quality transmit signal.

KC2000A、 KC2000D integrates the advantage of the same type production in Japan and USA at the end of 90's which combine the country development upon high technology and well designed to put forward a new generation intelligent Wave-guide dehydrator, this series machine small in size、 reasonable in inner structure、 good manufacture、 install easily and operate safely and so on.

## 2、 Main Features

2.1 The equipment adopts great capacity with highly effective industry level air compression pump, which combine with improvement pump floating-type shock absorption structure, effectively reduced noise caused by the pumped vibration when it works. The spacing installment which is specially designed to avoid that hitting in the transportation may surpass the pump body cushion limit to harm the product. The electromagnetism operating valve uses imports the module miniature valve which low in noise of operation and long using.

2.2 The equipment uses the brand-new control circuit design proposal, provides the balance gasification pattern, solves abnormal situation in the ultra long feed line gasification process.

2.3 The pressure examination and display adopts the American MOTOROLA Corporation silicon pressure transmitter and the NS Corporation special-purpose display chip, the essential spare parts choose from the Taiwan IT fitting merchant product, provides the safeguard for the control system long-term work stability.

2.4 Multi-purpose display and control panel, the dynamic simulation strip monitor indicate pressure value size, 0 ~ 99 counters display 24 hours accumulations charge number of times, the special blue color LED glitters lamp shows charge condition, the user may direct-viewing understand each working condition of the equipment.

2.5 The faceplate setting pressure programming switch, may according as in the scene regulating system working pressure the fluctuate limit scope, 2.5 ~

25KPa divides ten levels to dial the code operation, provides more than 24 kinds of programming combinations, to adjust work without the aid of measuring appliance to test but carry out precisely.

2.6 In outside with desiccant replacement port, the user without turn on the canopy to transposition the inner desiccant, the biggest desiccant fills installs the volume to reach as 1.2L and weight 1kg approximately.

2.7 With function of warning when breakdown, when the system divulges the equipment sends out the acousto-optic warning the display, simultaneously equipment warning the connection and send out long-distance alarm signal

### 3、 Main technical specification

Type	KC2000A(AC)	KC2000D(DC)
Operating pressure	2.5~30KPa adjustable	2.5~30KPa adjustable
operating voltage	AC 220V±10%. 50~60Hz	DC 48V±15%
host tightness	After 24 hours pressure maintaining, the pressure has dropped less than 3KPa	
noise	≤45dB(under inflated)	≤45dB(under inflated)
max air flow	15.litre/min	15 litre/min
air supply outlet	4	4
power consumption	Inflated 30VA pressure maintaining 5VA	Inflated 30VA pressure maintaining 5VA
MTBF	30000 hours	
size	370×260×120mm (width ×length ×depth)	
Weight	About 8kg (including desiccant and accessory)	

### 4、 Work Principle

When the system installment connection is completely installed and powered on, the equipment enters into charge state automatically (normal state) while the charge lamp glistens, when the working pressure rises to the upper rated pressure air pump stop working, The solenoid valve closed so that the air course to maintain the condition of voltage while the indicating lamp glistens.

When the pressure gradually falls under the limiting value the solenoid valve turns on the air pump to start once again, So circulates and ensure the system pressure constantly between the upper and lower rate threshold while the internal logic detect circuit through pressure transmitter real-time examination pressure variation and air pump working condition, when the system leaks or occurs abnormally, the monitor system will inform the maintenance worker in time.

## 5、 Display Faceplate Function

This equipment pressure display uses the import special-purpose integration block to compose Bar Graph (linearity chart) display, the display mode with high speed detect pressure variation of the ability and easy to monitor, can display pressure directly of fluctuation tendency and relatively information and so on. In order to help the user correctly to operate listed on the kneading board various characters meaning and the function as follows:

Kpa: 2.5 ~ 25, ten sections of pressure value, work with the light beam inside the light window can directly read the current pressure (KPa: Pressure unit).

Serial number: 1 ~ 10 total, work with the upper and lower threshold limit pressure established inside window codes on the switch 1 ~ 10 each correspondently, connect with the left side the pressure value scale when establish pressure facilitates dials the code operation.

Take count of charge: Uses two digital tubes to display, it shows the equipment charge times of each 24 hours after the equipment work on.

Balance mode: One of this equipment characteristic function, when fix the switch pattern to 6# ON (dials to left), the indicating yellow lamp bright as the balance state. When air charge by the interior sequence circuit control air pump to be charge/stop when rate is about 20 seconds /5 seconds simultaneously before 1 second of the period of finish to gather the limiting value compares to fixed upper threshold value, when reached to the upper limiting value will stop charge maintain pressure otherwise will continue to circulate this procedure. This function is suitable to works as the user end feed line is relatively long (for example above 100 meters), can eliminate under the ordinary air charge pattern the pressure to fall or rise, the frequent air charge and so on the abnormal phenomenon, so that when charge maintain stops the pressure value to approach as the actual as possible to the limit fixed threshold value.

Keep press/charge: For the multi-conditions blue indicating lamp, this equipment as the maintain pressure state this lamp to continue to lighten, when as the air charge state this lamp glitters fast.

Warning/fault: When the system appears the fault this red indicating lamp glistens.

## 6、 Mode setup

### 6.1 Mode/take count of enactment function

switch No.	Dials the code switch position		
	left (ON)	right	
8	Elimination sound	with sound	mode
7	two display	sole display	
6	balance	general	
5	50 times		Take count of enactment
4	40 times		
3	30 times		
2	20 times		
1	10 times		

### 6.2 Function instruction

Take count of enactment to be 1-5, notice that 1-5 at most choose one or all to light, for more information see chapter 9.

Mode6#: air charge choose, feed line during 50 meters as the normal mode, if more than 50 meters as the balance mode.

Mode7#: the light beam mode choose, single display (display from a point to another point), double display ( display point by point), according to the users habit to choose.

Mode8#: warning noise choose, see chapter 7.4.

## 7、 Warning

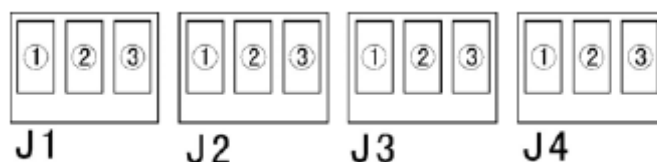
### 7.1 warning automatic releasing functions:

When the system leaks and the pump continue to charge more than 30 minutes, the equipment will in the protective closed state and the warning control signal. The warning indicating lamps lights and sends out alarm to interface J4 which sends out signal. The warning state will be last 30 minutes

later and the circuit will automatic release warning and continue to charge to upper threshold as the maintain pressure state, or else it will repeat the above process. The working mode is used without person station or to occur leaks fault while maintenance man can not reach in time, the equipment carry out the emergency process, at most maintain system inner pressure to make the air pump and electromagnetism valve to refrigerate. When the system leak lightly and reach to the take count of enactment (the faceplate to 10-50 times), also the warning system is active. If the warning is not released manually, the system will release this warning within 24 hours and restore to charging state, if the malfunction is not released, the system will warn again.

7.2 warning manually release method: restart the system (Power on /off) after repairing the system.

7.3 The connection of warning port: the warning output is typical relay system. The permitted current is up to 5A 240 V, the top of the equipment interface serial number as follows:



J1、 J2 、 J3 interfaces are empty.

J4 is the warning output port, 1-2 for work on all long (when warning leads passes), 1-3 for often shuts (time warning shuts). If the user needs to the equipment to carry on the long-distance breakdown surveillance to be supposed to operate by the specialist, first takes out in the stochastic appendix the orange warning plug, carries with the double core according to the need to connect to the plug wiring, then correctly inserts the plug to top of the equipment of the corresponding plug in, the output line and the long-distance warning equipment then carry on the long-distance surveillance after suitable connection.

#### 7.4 Warning canceling function

When at warning state this equipment can accompany send out sound like buzzing as to reminds the user pay attention, but sometimes the user maybe needs static sound environment or to be without anyone on duty the equipment, thus can setup the kneading board pattern mode 8 codes to be ON, when warning an emergency again as the static sound, but the warning state still maintained.

## 8、 Work Pressure Setup

The machine has already set the upper and lower pressure threshold to the reasonable value when leave the factory. If there is no special requirement once power on the equipment enters into normal state without any setup. If there is need that the user has to setup the pressure scope, please follow the bellowing to operate.

For example, one of the feed line has to maintain the pressure between 10-20 Kpa. Before setup be sure that the power source is off. Turn on one side air button to empty the air put out. Use the bottom of the pen to put the setup inner window upper and lower threshold all of the row of code switch button to right (turn off), from the display window of two sides check out 10 Kpa as 4 code, 20Kpa as code 8, put the upper setup threshold one of the eight switch buttons turn to left (on position), the lower setup threshold one of the four switch buttons turn to left (the upper 5~10# and the lower 1~4# only allow one each button to left), the whole setup is finished restart the equipment to work on.

## 9、 Take count of enactment

This machine faceplate take count of charge window to display the value as the power source restart in every 24 hours interval of charge times, the internal machine circuit can monitor this value, when achieved the take count of value it warns. The take count of charge window code switch 1 ~ 5# can be able to establish in 24 hours for the user most charge times, which separately correspond to 10 ~ 50 times, if the actual charge surpasses this value it will warn. If there is necessary to establish 30 times, then dials 3# to left then, 1 ~ 5# only can choose one code to left, (that is choose one code in five code), if completely close should cancel the warning, 0 ~ 99 counts circularly.

## 10、 Installation and Maintenance

### 10.1 installation and fix

This machine can both set as table type and the wall hanging, when installs as the wall hanging it coordinates with the appendix M6 hang hole with special-purpose nut which can be able to realize installment on many kinds of structure and easy to teardown, the operating details procedure as follows:

A) the installment for brick mixture on the wall: First uses the impact to drill two install center holes for two 30 centimeters distance  $\Phi$  as 10 on the suitable highly horizontal position on the wall, when the stochastic appendix M6 inflation bolt coordinate with the hole nut fixed (pays attention to the nut enter direction be sure that should six sides fronts to abut wall surface) to the install hole center and the fastening nut, then the opposite plate correspond to two

hanging hole should fix to the wall nut channel, when take down the machine just upwardly lightly lifts the organism already separated from hanging object.

B) installment on equipment: prepare for two M6×14 bolts, drill two  $\Phi 6$  installing holes the opposite plate or the horizontal support (may use U channel steel self-restraint) in the rack at the appropriate position, the two M6 bolt should through from the opposite plate  $\Phi 6$  then use in the appendix hole nut to fasten, the operate method may follow as a) the item. The user also may select and purchase end product installments from the factory, there are two parts with upper and lower hanging board which are suitable for 19 inches standard equipment.

C) installment on wood construction wall: prepare for two  $\Phi 4 \times 40$ mm long tapping screws or wood screw, through hanging hole nut the inner spiral hole, fasten the two nut to the wall that is relatively fasten, the operate method may refer to a) item.

10.2 some instruction during the installment: when the dehydrator connects with the air conduit and puts through the load feed line, when gasification the pressure value rise to the limiting value, stop charge, then the pressure drop to the original numerical value Kpa phenomenon, this is by length shape of feed line factor to decide air damping coefficient, after enter a quota the air to create the internal near end and the far-end different pressure, in the usual situation in the smaller caliber and longer then the above pressure falls after rise the value to be bigger, this possibly can affect to the gasification machine work time the stability should bring to the attention. Regarding to KC-2000A type it can be solved by balance mode .

10.3 replacement of desiccant: This machine used the blue color granulated change color the silica gel to make the desiccant, when the desiccant which in right flank board humidity observation window has changed into the pink should carry on the replacement or the regeneration. Concrete operation as follows: take down the dehydrator from bracket, turn on the base of machine carapace aluminum lid through the hand counter-clockwise running, the pour the desiccant, use the books to backstop cause machine inversion and hole to face on (like chart). First, pour 1 litre new desiccant into a plastic bag, cut 2 centimeter in bag bottom slanting incision, fills 90% desiccant through this small mouth into hole, eliminates around the hole the grain and afresh tighten the aluminum lid. Please don't pour desiccant after the desiccant bottle take out from the machine, this will be able to affect the entire machine system gas tightness.





10.4 Desiccant regeneration method: put the pink desiccant into the lower container which can endure high-temperature, then put into the drying oven to heat as  $125\pm 5\text{ }^{\circ}\text{C}$  and maintain to constant temperature, the desiccant return to blue color, the natural cooling to  $50\text{ }^{\circ}\text{C}$  below, according to the above replacement method put into the machine.

### 11. Examine and eliminate of warning broken-down

Breakdown status	Display window information	malfunction reason	Eliminate methods
open the machine without charge give an alarm	uncertain	without enactment floor level of pressure	afresh enactment work pressure upper and lower limit through pressure setup way
Warning during the working process	pressure display down or already to zero	User unit leak	Check leak and do airproof
	pressure display in invariableness and under the upper limit	1.when first use may charge for 30mins 2. without upper pressure value 3. upper pressure value Surpass air pump charge capacity	1.wait for 30 mins the circuit can return to charge state automatically or directly operate to eliminate alarm to charge on 2. set upper threshold value correctly 3. propriety lower down the work pressure upper threshold value

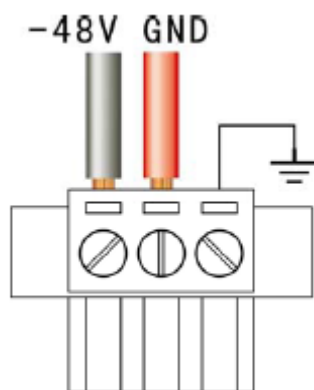
### 12.Appendix (common pressure unit conversion table)

Kpa	PSI	mmHg	$\text{Kg} / \text{cm}^2$
1	0.145038	7.5	0.01

### 13. Stochastic accessories list

Items	specification	amount	note
PU soft pump	6mm×4mm ( outside diameter ×inside diameter )	15meters	
Air mouth tie-in	Φ4	4pieces	
Spare Air mouth tie-in	Φ4	4 pieces	
seal screw cap	M12 × 1	4 pieces	already fitted on machine
alternating current line	3 meters	1 piece	Use for KC2000A
direct current line	3 × 1mm <sup>2</sup>	10 meters	Use for KC2000D
Protective tube	2A	2 piece	Use for KC2000D
Alarm plug	HT396-3	1 piece	
expand bolt	M6 × 50	2 pieces	
Hanging hole bolt	M6	2 pieces	already matched case with swell bolt
User manual		1 piece	

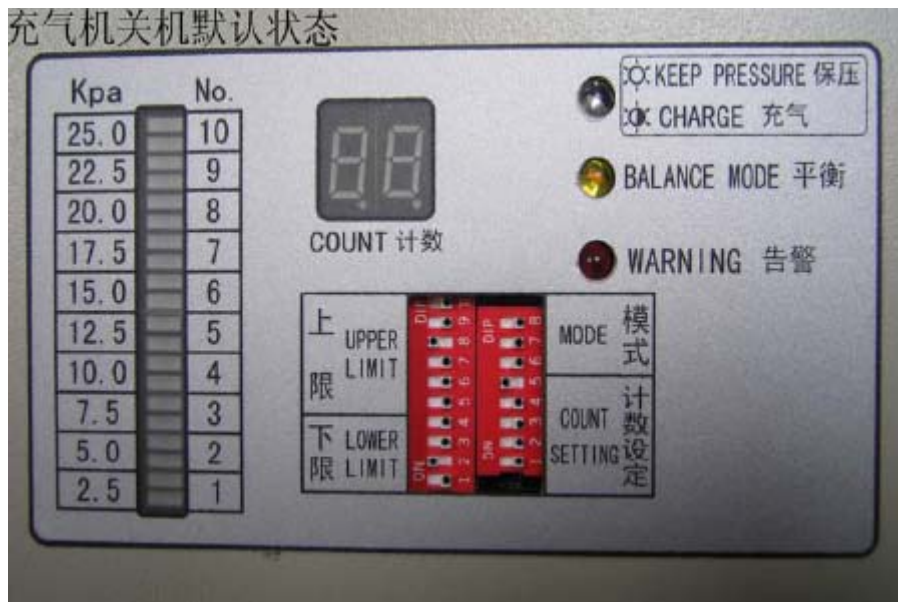
*note: Please keeping this manual carefully in order to reference in the future.*



DC attaching plug wiring diagram(apply to KC2000D)

### Attached File

1、The default state of Dehydrator off(This default state refers to open up packaging)



2、The default state of Dehydrator on(This state refers to open up an airtight closure screw cap,put on 5 seconds,put off 5 seconds ,screw an airtight closure screw cap)

