



DETROITAIR

COMPRESSED AIR INNOVATION THROUGH TECHNOLOGY

Air Dryer

OPERATION MANUAL

**DT-10A TO DT-300A AND
DT-125A to DT- 400A WITH TOUCH SCREEN CONTROLLER**

GENERAL

This manual will help the user operate this equipment safely and correctly. Correct operation of this Air Dryer will reduce maintenance costs and extend the working life of all systems and parts in this unit.

Local law should be adhered to when importing, exporting, transporting, installing, running, and maintaining this machinery. It is up to the user to ensure proper adherence of local law.

General technical specifications and safety laws need to be adhered to when working with any machinery.

WARRANTY

Please make yourself familiar with this operating manual before operating the dryer system, otherwise your warranty may be void.

If this dryer is not used within the scope of its operating specification no claim against defect will be entertained.

The following will result in a void warranty:

- Operation beyond design specification.
- Improper maintenance of the unit or its pre/after filters.
- No pre/after filters installed.
- Usage of generic replacement parts not supplied by Detroit Air.
- Changing of the refrigerant gas.

This is a specialist piece of equipment and needs to be treated as such.

Safe Operation Specification

Operation regulations must be strictly obeyed.

Technical Modification

Detroit Air and its subsidiaries reserve the right to modify the dryer system in any way without prior notice.

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1. Installation Requirements

- A:** **Standard requirement for this dryer:**
No ground bolts are needed, but the surface must be horizontal and solid and allow for the drainage system in the unit to function correctly.
- B:** The distance between the dryer and other machines or any wall, should not be less than one metre for efficient operation and maintenance.
- C:** The dryer must not to be installed outside of a building or in direct sunlight, rain, high temperature, badly ventilated areas, or in areas where heavy dust is present.
- D:** While installing, avoid excessively long pipes, too many elbows, and insufficient pipe diameters. All of these will contribute to excessive pressure drops.
- E:** At the inlet and outlet, bypass valves should be installed for easy maintenance of the unit.
- F:** Pay special attention to the power requirements of the dryer:
1. Rated voltage should be within $\pm 5\%$.
 2. Installers of electric cables should take into consideration the length and load the cable will have to sustain.
- G:** The cooling or cycling water must be clean with pressure not less than 0.15Mpa, and temperature not higher than 32°C for water cooled models.
- H:** At the inlet of the dryer, a pre-filter is required to be equipped which may prevent solid impurities and oil from polluting aluminium or copper tube surfaces. Dirty air may affect heat-exchanging ability and can cause blockages.
- I:** The dryer should be installed following an after-cooler and pressure vessel in order to reduce the compressed air inlet temperature.

2. Maintenance Requirements for Refrigerated Type Dryers

It is vital to service and maintain the dryer to ensure efficient operation and long life.

A: Maintenance to the surface of the dryer:

- The cabinet should be cleaned with a damp cloth or the like.
- Please check for rust and other water damage.
- Should the cabinet be rusting, apply a rust inhibitor.
- Do not clean the cabinet with a high-pressure water hose as electrical damage may occur.
- Use a paintbrush/airgun/hand broom (not wire brush) to clean the heat exchange unit/fan/electrical box.
- Never wet the electrical components.

B: Maintenance of the automatic drain system:

- Operators should examine the water drainage system and remove dirt stuck to the filter mesh-work.
- Dirt build-up could prevent the drain from functioning correctly.

NOTE

ONLY SUDS OR CLEANING AGENTS MAY BE USED FOR CLEANING THE DRAIN-MESH. NO SOLVENTS OR FLAMMABLES SHOULD BE USED.

C: Supposing a manual drain valve is equipped, the user should drain at least twice every day at set intervals.

D: Use an airgun or paintbrush to clean dust from the condenser unit as dust build-up will cause inefficient operation.

E: Maintenance for water-cooled type filters:

- The water filter will prevent solids from entering the condenser and guarantee good heat exchange. Ensure this filter is cleaned regularly to prevent slow water cycle and heat radiation.

F: Maintenance of internal parts:

- Dust should be removed on a regular basis to extend the life of the machine.

- G:** The dryer should be shut down for servicing and maintenance.

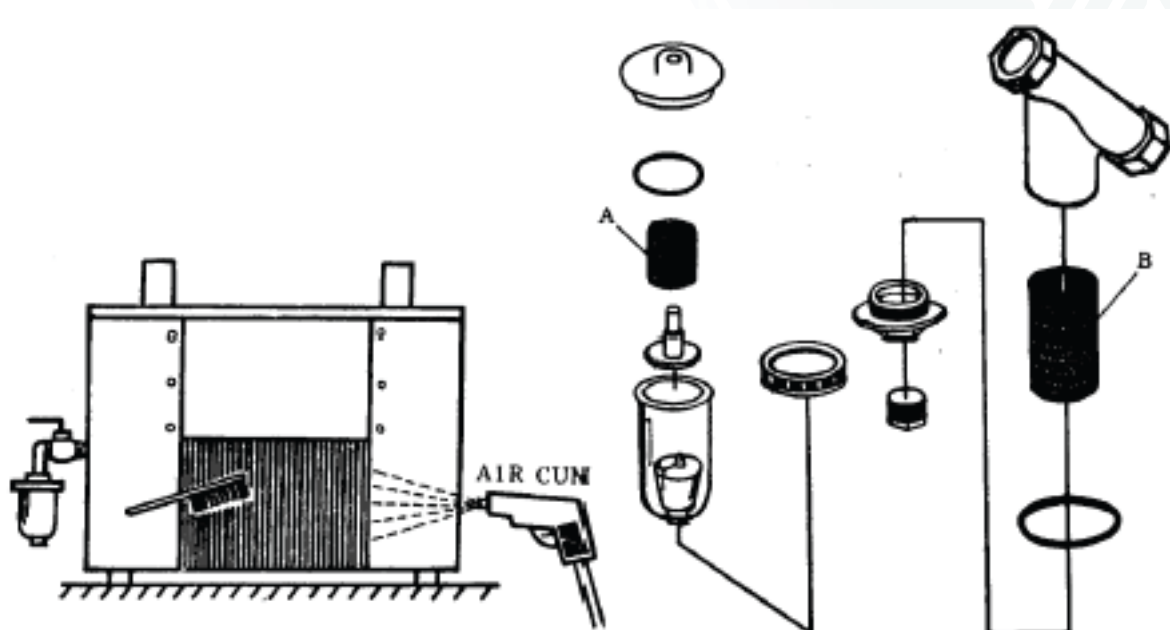


CHART 1

CHART 2

CHART 3

CHART 1

- Cleaning illustration for the condenser.

CHART 2

- Critical cleaning points for the automatic drain:



CAUTION

Gasoline, toluene, turpentine or other solvents are prohibited to perform this step.

CHART 3

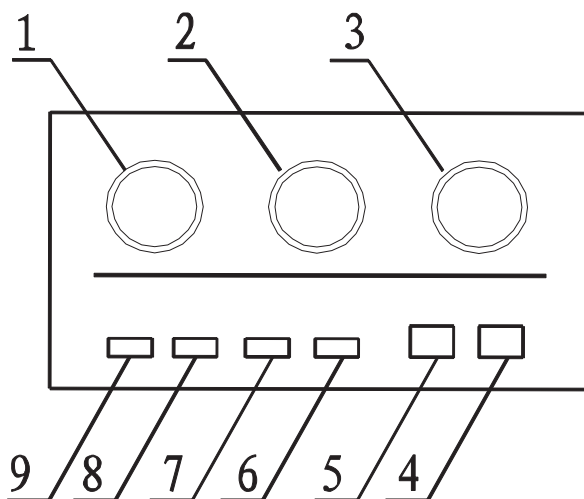
- Water filter disassembly illustration.

3. Dryer Operation

3.1 Before Start-up

1. Ensure power voltage is normal; within 5% of the machine's requirements.
2. Check the refrigerant system: Watch the high and low pressure gauge on the refrigerator unit; it will reach a point where it will settle - it may fluctuate by $\frac{1}{2}$ to 1Mpa temperature-dependent.
3. Check if the pipeline is as required: The inlet air pressure should not be higher than 1.6Mpa (except in some specific installation types) and its temperature should not be higher than the set value while selecting this type.
4. If water-cooled systems are used, the operator needs to ensure the water pressure requirements are met (0.14 to 0.4Mpa) as well as a temperature below 32°C is maintained.

3.2 Operating Instructions



Instrument control panel specification

- Panels may vary from illustration

1. Low pressure gauge on the refrigerant (pressure dew point gauge), which will indicate saturated pressure value.
2. High-pressure gauge which will show condensation pressure value for the refrigerant.
3. Air outlet pressure gauge which will indicate the compressed air pressure value at outlet.
4. Stop button.
5. Start button.
6. Power indication light – Illuminated indicates power on.
7. Operation indication light (Run). When on, it indicates the dryer is running.
8. High/low pressure protection on/off indication light for refrigerator (Ref H.L.P). When illuminated the unit is in protection mode.
9. Indication light for Current Overload (O.C.TRIP). When illuminated, working current has exceeded current load limits dryer will shut down.

3.3 Operating Procedure of the Dryer

1. Switch on main power supply; the on/off and power indication light will be red on the power control panel.
2. If the water-cooled type is used, the inlet and outlet valves for cooling water should be open.
3. Push the green button (START). Operation indication light (Green) will be illuminated. The compressor will start running.
4. Check if the operation of the compressor is normal, i.e. check for error/protection lights and whether the high/low pressure gauge is reading correctly.
5. Assuming everything is normal, open the inlet and outlet valve; air will flow into the bypass valve. At this moment the air pressure indication gauge will show air outlet pressure.
6. Watch for 5-10 minutes to make sure that the treated air will meet requirements. The low-pressure gauge on the refrigerator indicates a pressure of 0.3-0.5Mpa., the high-pressure gauge will indicate 1.2-1.6Mpa, and the dew point gauge will show 2-10°C.
7. Ensure the auto drain is functioning correctly.
8. The air source should be shut off before shutting the dryer down. Open the drain valve and completely drain waste condensed water.

3.4 While in operation, take note of the following:

1. Prevent the dryer from running with no load.
2. Avoid starting and stopping the dryer within a short period of time as the refrigerant compressor may be damaged.

4. Troubleshooting

Dryer problems mainly exist in electrical circuits and refrigeration systems.

The results of these problems are:

1. System shutdown.
2. Reduction of cooling capacity or equipment damage.

To locate the problem correctly, and take practical measures, concerns theories of refrigerant and electrical backgrounds. Most problems are caused by lack of correct installation or maintenance. When a dryer unit gives problems, make sure to solve the actual cause of the problem and not just fix the result of the problem. A problem may cause multiple failures, so be sure to check for all possible damages and causes.

The common problems and fixes are as follows:

1. The dryer fails to start:

PROBLEM		SOLUTION	
A	No power supply or low voltage	A	Check power supply
B	Circuit fuse blown	B	Replace the fuse, check for short circuit
C	Wires disconnected	C	Find the disconnected wires and repair
D	Wires loose	D	Check that all wires and connectors tightly connect

2. The compressor fails to start:

PROBLEM		SOLUTION	
A	Dropped phase in power supply; improper voltage	A	Check power supply has proper voltage
B	Bad contact on the contactors	B	Replace contactor
C	High- and low-pressure (or voltage) protective switch problem	C	Regulate voltage switch set value, or replace damaged switch
D	Overheat or overload protection relay problem	D	Replace thermal or overload protector
E	Wires disconnected in control circuit terminals	E	Find disconnected terminals and reconnect
F	Mechanical trouble in the compressor, such as a jammed cylinder mechanical failure	F	Replace compressor
G	If the compressor is started using a capacitor, the capacitor could be damaged and will need to be replaced	G	Replace start capacitor

Troubleshooting (cont.)

3. The refrigerant pressure is too high and causes the pressure switch release; (REF H,L,P,TRIP) indicator goes on:

PROBLEM		SOLUTION	
A	The inlet air temperature is too high	A	Improve the heat exchange of after-cooler to lower the inlet air temperature
B	The heat exchange of air-cooled condensers is not sufficient; may be caused by insufficient cool water flow or bad ventilation	B	Clean pipes of condenser and water-cooling system and increase cool water cycling volume
C	Ambient temperature is too high	C	Improve ventilation; clean the heat exchanger
D	Overfilling of refrigerant	D	Discharge surplus refrigerant
E	Gas pollution in the refrigerating system	E	Vacuum the refrigerant system once more; fill refrigerant to correct pressure

4. The refrigerant low-pressure is too low and causes pressure switch release; (REF H,L,P,TRIP) indicator goes on:

PROBLEM		SOLUTION	
A	No compressed air flowing	A	Increase air consumption/flow.
B	Airflow is too little	B	Increase airflow and heat load.
C	The hot air bypass valve is not open or is faulty	C	Regulate hot air bypass valve, or replace bad valve
D	Insufficient refrigerant or leaking	D	Refill refrigerant or find leak. Repair and vacuum once more; refill with refrigerant

5. Operating current is exceeded, causing the compressor to overheat and the overheat relay releases; (O,C,TRIP) indicator goes on:

PROBLEM		SOLUTION	
A	Excessive air load; bad ventilation	A	Lower the heat load and inlet air temperature
B	High ambient temperature and bad ventilation	B	Improve ventilation conditions
C	Too much mechanical friction within the compressor	C	Replace lubrication grease in the compressor; or replace the compressor
D	Insufficient refrigerant causes high temperature	D	Fill refrigerant to proper pressure
E	Overload for the refrigerant compressor	E	Reduce start and stop times
F	Bad contact of main contactor set	F	Replace contractor set

Troubleshooting (cont.)

6. Water in the evaporator has frozen. Consequently, when the waste valve is opened, ice particles are blown out:

PROBLEM		SOLUTION	
A	Little airflow/ low heat load	A	Increase compressed airflow
B	The hot air bypass valve is not opened	B	Adjust hot air bypass valve
C	The inlet of the evaporator has been jammed and too much water has collected; ice-particles have formed and restrict airflow	C	Drain the auto-drain and completely drain the waste water into the condenser.

7. Dew point indication is too high:

PROBLEM		SOLUTION	
A	Inlet air temperature is too high	A	Improve heat radiation in the after cooler and lower inlet air temperature
B	Ambient temperature is too high	B	Lower ambient temperature
C	Bad heat exchange in air-cooled systems; the condenser is blocked; in water-cooled systems, water flow is not sufficient or the water temperature is too high	C	For air-cooled models, clean the condenser. For water-cooled models, remove the dirt on the condenser
D	Too much airflow but too low pressure	D	Improve air pressure
E	No airflow	E	Improve air consumption conditions for compressor

8. Excessive pressure drop in the compressed air output:

PROBLEM		SOLUTION	
A	Pipeline filter blocked	A	Clean or replace the filter
B	The pipeline valves have not been fully opened	B	Open all valves through which air must flow
C	Insufficient diameter of pipe OR too many elbows OR too long a pipeline	C	Correct airflow system
D	The condensed water has frozen and caused gas tubes in the evaporator to be blocked	D	Follow as mentioned above

Troubleshooting (cont.)

9. The dryer may run normally, but does not perform efficiently:

If the demands on the system change, it may cause problems and the dryer may need to be adjusted to correct the imbalance. If the flow rate exceeds the range in which the expansion valve operates, you will need to adjust the expansion valve manually.

When adjusting the valve, you should only turn it 1/4 - 1/2 turn at one time.

Check operation 10 – 20 minutes later. Adjust further only if necessary.

We know that the dryer is a complex system which consists of four main systems and many accessories that form part of a larger system. It is logical that if a problem arises, one needs to analyze and eliminate possible causes in each part of the system.





In addition, when repair or maintenance work is performed on the dryer, users must pay attention to prevent the refrigeration system from being damaged, especially damage to capillary tubes, otherwise refrigerant leaking may occur.

5. Technical Specification

Temperature display range	-20°C~100°C (The resolution is 0.1°C)
Power supply	220V±5% or 380V±5%
Temperature sensor	NTC R25=5kΩ,B(25/50)=3470K

6. Operating Guide DT-Series Dryer

6.1 Meaning of the Index Lights on the Panel

INDEX LIGHT	NAME	LIGHT	FLASHING
	Refrigeration	Refrigerating	Ready to refrigerate, in the state of compressor start delay procedure
	Fan	Fan in operation	-
	Defrost	Defrosting	-
	Alarm	-	Alarm state

6.2 Meaning of the LED Display

The alarm signal will alternately display temperature and a warning code. (A xx)

TO CANCEL THE ALARM, RESTART THE CONTROLLER.

Display codes as follows:

CODE	MEANING	EXPLANATION
A11	External alarm	Alarm from external alarm signal; refer to the internal parameter code "F50"
A21	Dew point sensor fault	The dew point sensor circuit is open or short. The dew point temperature display shows "OPE" or "SHr"
A22	Condensation sensor fault	The condensation sensor circuit is open or short Press ▼ will display "SHr" or "OPE"
A31	The dew point temperature fault	If alarm occurred when dew point temperature was higher than the set value, choose whether to shut down or not (F51). The dew point temperature alarm will not sound when the compressor starts after five minutes
A32	Condensation temperature fault	If alarm occurred when condensation temperature was higher than the set value, choose whether to shut down or not (F52)

Operating Guide (cont.)

6.3 Temperature Display

After power-on self-test, the LED displays the dew point temperature value. When pressing on "T", it will display the temperature of the condenser. Releasing it will revert the display the dew point temperature.

6.4 Cumulative Working Hours Display

Pressing on the "▲▼" at the same time will display the compressors' accumulated operational time. Unit: hours.

6.5 Higher Level Functions

Press and hold "M" for 5 seconds to enter parameter settings. If command set is on, it will display the word "PAS" to input the command. Press "▲▼" to input the command. If the command is set, it will display the parameter code.

Parameter code as follows:

CATEGORY	CODE	PARAMETER NAME	SETTING RANGE	FACTORY SETTING	UNIT	REMARK
Temperature	F11	Dew point temperature warning point	10 - 45	20	°C	It will warn when the temperature is higher than the set value
	F12	Condensation temperature warning point	42 - 70	65	°C	
	F18	Dew point sensor amendment	-20.0 - 20.0	0.0	°C	Resolve dew point sensor error
	F19	Condensation sensor amendment	-20.0 - 20.0	0.0	°C	Resolve condensation sensor error
Compressor	F21	Sensor delay time	0.0 - 10.0	1.0	Minute	
Fan / Antifreezing	F31	Start defrost procedure temperature	-5.0 - 10.0	2.0	°C	It will start when the dew point temperature is lower than the set value
	F32	Antifreezing return difference	1 - 5	2.0	°C	It will stop when dew point temperature is higher than F31+F32. OFF
	F41	The second output mode	OFF 1 - 3	1	-	No fan 1. The fan is under the control of condensation temperature 2. Fan works with the compressor 3. Antifreezing output mode
	F42	Fan start temperature	32 - 55	42	°C	Fan will start when condensation temperature is higher than the set value; fan will stop when lower than set return difference
	F43	Fan stop temperature return difference	0.5 - 10.0	2.0	°C	

Operating Guide (cont.)

CATEGORY	CODE	PARAMETER NAME	SETTING RANGE	FACTORY SETTING	UNIT	REMARK
Alarm	F50	External alarm mode	0 - 4	4	-	0: without external alarm 1: always on, unlocked 2: always on, locked 3: always off, unlocked 4: always off, locked
	F51	Response to dew point temperature alarm	0 - 1	0	-	0 : Only alarm, not shutdown 1: Alarm and shutdown
	F52	Response to condensation temperature alarm	0 - 1	1	-	0 : Only alarm, not shutdown 1: Alarm and shutdown
System Menu	F80	Password	OFF 0001-9999	-	-	OFF means no password; 0000 System means clear password
	F83	Switch machine state memory	YES - NO	YES	-	-
	F85	Display the compressor accumulated operational time	-	-	Hour	-
	F86	Reset compressor accumulated operational time	NO - YES	NO	-	NO: not reset YES: reset
	F88	Reserved				
Testing	F98	Reserved				
	F99	Test-self	This function will activate all relays together; do not use it when the controller is running!			
	END	EXIT				

7. Basic Operating Principles

7.1 Compressor Control

After the controller is powered on, the compressor will delay starting for a moment to protect itself (F21). The indicator light will flicker at the same time. If the external input is alarming, the compressor will not start.

7.2 Fan Control

Fan default is to operate under the control of the condenser temperature. It will start when the temperature is higher than (including) set point (F42), off when lower than the set point - return difference (F43). If the condenser sensor fails, the fan defaults to run with the compressor.

7.3 External Alarm

When an external alarm occurs, the compressor and fan will stop.

External alarm signal has 5 modes:

- (F50):**
- 0: without external alarm
 - 1: always on, unlocked
 - 2: always on, locked
 - 3: always off, unlocked
 - 4: always off, locked

"Always on" means operation in normal state, the external alarm signal is active, if off, the controller alarms.

"Always off" is the opposite.

"Locked" means that when the external alarm signal becomes normal, the controller is still in the alarm state and the operator needs to press any key to resume.

7.4 Command

In order to prevent unauthorized persons from changing the parameters, you can set a password (**F80**), and if you have set a password, the controller will hint you to enter the password after you hold the key "M" for 5 seconds.

You must enter the correct password, then you can set the parameters.

If you don't need the password, you can set (**F80**) to "0000".



NOTE

You must remember the password; if you forget the password, you cannot enter the settings parameters.

8. Operating Guide DB-Series Dryers

8.1 Overview

Detroit Air DB Series Dryers come equipped with the XJK-LG134 control system. This system reliably controls and monitors the proper function of the dryer system and is suitable for most users' needs.

8.2 Main Functions

1. Auto control of the refrigerant compressor.
2. Detect and display air temperature.
3. LED display of temperature and parameter values.
4. High-pressure alarm.
5. Temperature sensor failure alarm.

8.3 Technical Parameters

1. **Rated voltage:**
 - AC 220V (+15%~20%)
2. **Operating temperature range:**
 - -25°C~55°C;
 - storage temperature: -40°C~70°C
3. **Switch signal inputs:**
 - 3 push buttons (Set, On, and Off)
 - 2 output channels for N.C alarm signal outputs (Overload and Abnormal Pressure Alarm)
 - 1 channel for remote start/stop signal
4. **Outputs:**
 - 2 channels (compressor and alarm):
 - Capacity: 30A @AC250V for compressor-control single-phase, lower than 2.2kW
5. **Display:**
 - 4 pcs 13x9 LED
6. **Installation size:**
 - 152mm(width) × 102mm(height) × 55mm(depth)

9. Operation Interface

9.1 Panel Layout

- **RED LIGHT** - REFRIGERANT and OVERLOAD (illuminates if fault present)
- **GREEN LIGHT** - RUNNING, REMOTE and DELAY (shows the relevant relay is working)
- **LED DISPLAY:**
 - Displays temperature value when power is switched on.
 - Press SET button continuously for 5 seconds to enter temperature correction, temperature setting range is -9°C to 9°C. If the temperature sensor fails, the relevant temperature sensor fault code will be displayed.
 - E01 means break in the circuit or sensor failure
 - E02 means short circuit

9.2 Operation

1. Logic control and function description
 - a) After energizing, the controller enters LOCK mode and the DELAY light flashes. The LED displays the temperature value. When LOCK time completes, the system enters standby mode.
 - b) While in standby mode, press the ON button and then release; the system will start to work. The compressor will start and the controller enters RUN mode with the RUN light illuminated.
 - c) After the compressor has run for 3 seconds, it detects any alarm input. If detected, the control system will stop and lock.
 - d) To stop the machine, press the OFF button and then release. COMP breaks with C3 and the machine will stop. DELAY light is then illuminated..
 - e) **Machine shutdown because of alarm:**
 - When alarming, the machine shuts down immediately and the REFRIGERANT light illuminates.
 - The machine cannot be restarted until the fault is resolved.
 - When L+ breaks with OL(OVERLOAD), the machine shuts down immediately and OVERLOAD indicate light illuminates.
 - The machine cannot be restarted until the fault is resolved.
 - The controller can only be started when all alarm causes have been resolved.
 - If the fault has been resolved or the alarm has stopped, press the OFF button or re-energize the controller to reset the alarm.
 - If the temperature sensor breaks or goes faulty, the relevant temperature sensor fault code will be displayed.
 - E01 means break in the circuit or sensor failure; E02 means short circuit.

9.3 Local/remote start

- **Local control:** Press the ON button and the controller starts to run.
- **Remote control:** Connect L+ and YQ to start with remote control. Remote control can be cancelled by pressing the OFF button or breaking connection between L+ and YQ. Please use an on/off switch as the remote start switch.

Reliable Machinery from the Experts.



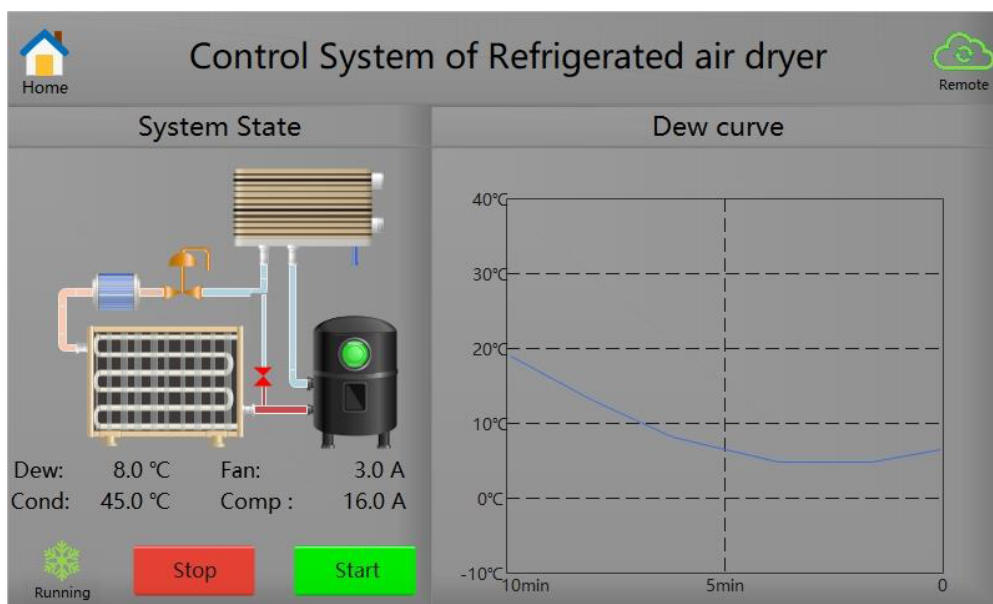
Touch Screen Control System of Refrigerated Air Dryer - DT-A Series

Technical criteria

Temperature range : -20~100°C (resolution 0.1°C)
Power supply voltage : DC 24V
Temperature sensor : NTC R25=5kΩ,B(25/50)=3470K

Operation Guide

After power on, it will automatically switch to the "operation screen". You can press the "Home" icon to switch to the home page, and then enter the parameter setting page.



In the operation screen, the following contents can be displayed:



Stop/Start:

Press this icon button to switch the on/off state of the system.



Remote indication:

"Whether to enable remote switch on/off" can be set by parameter. When this icon lights up, it means that the function is enabled. At this time, the "remote" relay is pulled in to prompt that the control terminal can conduct remote control. The switch on/off button on the screen is invalid, and the switch on/off needs to be controlled through the external input terminal.



OFF status:

The system is not operational.



Waiting to run:

At this time, the dryer has been started and is under shutdown delay protection. After the delay time, the compressor will start.



Running:

Compressor has started and is running.



Alarm:

Press this icon to switch to the alarm query page to view and resolve the alarm.

Current display:

When the compressor is running, the current value can be displayed. The current value and re-action time of overload protection can be set through parameters.

Dew point temperature:

The temperature control point of the dryer system can be set by parameters. An alarm will be generated when the dew point temperature is still higher than the set value five minutes after the compressor is started.

Condensation temperature:

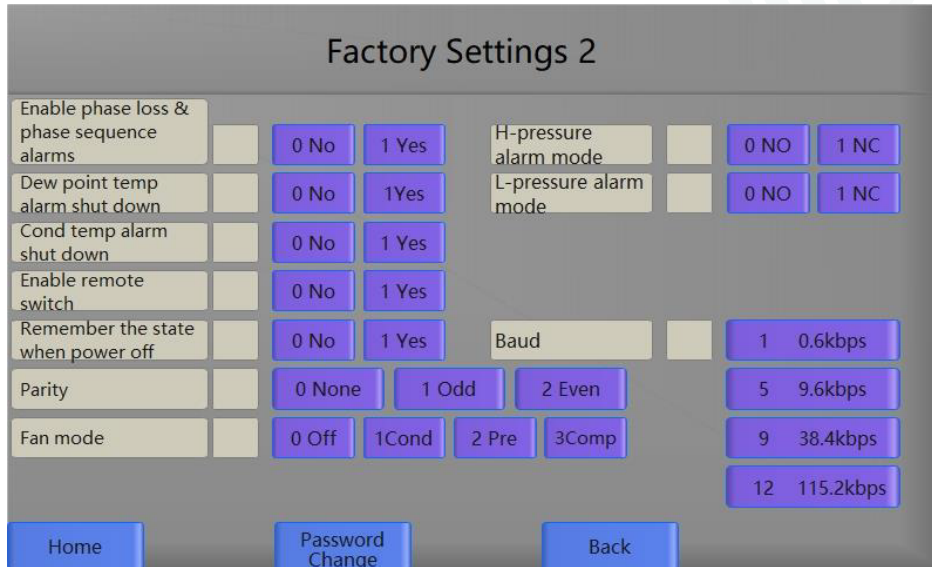
Condensation temperature can be used to control fan start-up and shutdown. An alarm will be generated when the condensation temperature is higher than the set value.

Parameter setting

The 'User Settings' screen displays several adjustable parameters. At the top, 'Drain time' and 'Drain interval' are each followed by a numeric input field. Below these, 'Runtime' is shown with a numeric field and two colon-separated fields for minutes and seconds. Further down, 'Enable remote switch' has a checkbox and two buttons labeled '0 No' and '1 Yes'. 'Fan mode' has a checkbox and four buttons labeled '0 Off', '1 Cond', '2 Pre', and '3 Comp'. At the bottom, there are three blue buttons: 'Home', 'Password Change', and 'Save'.

The user can set the drainage time and drainage interval, view the accumulated running time, and enable remote control function.

The 'Factory Settings 1' screen shows a grid of factory default settings. The left column includes 'Dew alarm point', 'Cond alarm point', 'Dew correction', 'Cond correction', 'Downtime protection time', 'Comp overload current', 'Comp overload delay', and 'Prevent Frostbite Temp', each with an adjacent input field. The right column includes 'Prevent Frostbite return difference', 'Fan starting temperature', 'Fan stop return difference', 'Fan overload current', 'Fan overload delay', and 'Slave address', each with an adjacent input field. At the bottom, there are three blue buttons: 'Home', 'Next', and 'Save'.



Function description

Manual drainage

In the "Operation screen", press the icon of the heat exchanger to start the primary drainage.

Compressor control

Press the power key to start the machine. The relay of the "running light" will be pulled in and the "compressor" will be started. If the last shutdown is less than the shutdown protection time, the machine will enter the "waiting" state. If an alarm (such as high voltage alarm) is detected, the compressor stops and the alarm relay is closed. The compressor can only be started after the alarm is cancelled.

Remote control of start and stop

"Whether to enable remote switch on" can be set through parameters. At this time, the "remote" relay is closed to prompt the control terminal so that remote control can be performed. The switch Start/Stop button on the screen is non-functional, and the switch on/off needs to be controlled through the external input terminal.

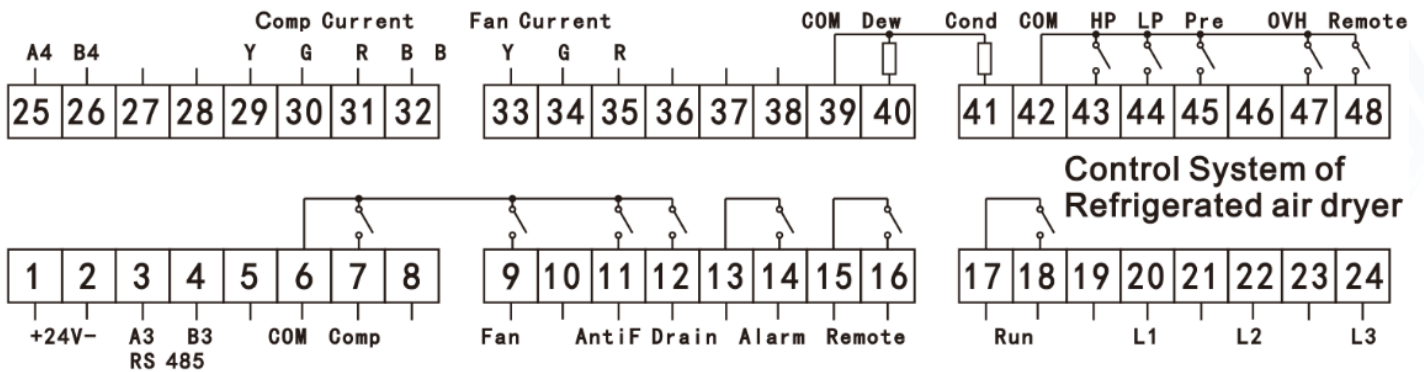
Compressor overload protection

The overload protection current value and action time of the compressor can be set through parameters.

Phase sequence protection for phase loss

This function can be enabled by parameter setting, and the controller will detect whether the three-phase power supply input has phase sequence and phase loss faults. When the fault occurs, the compressor and fan cannot be started.

Controller wiring diagram



RS 485

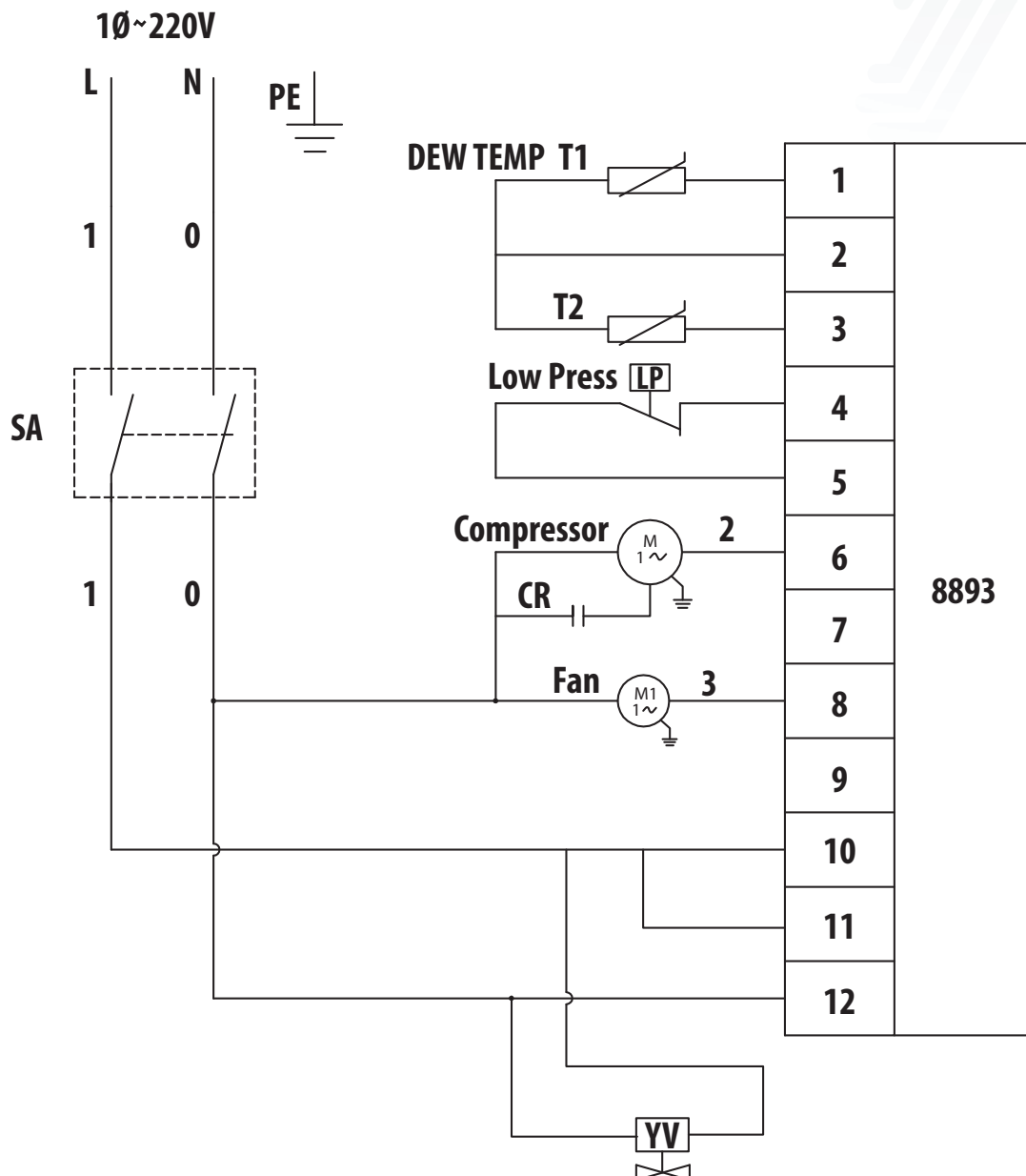
MODBUS	RTU
Slave ID	1
Baud	9.6kbps
Parity	None
Date	8
Stop	1

System	
41101	ON/OFF 0 OFF 1 ON
41102	State 0 OFF 1 Waiting 2 Running 3 Alarm
41110	Switch on/off Write "1" to switch on/off
Reset	
41120	Reset Write "1" to reset
Analogs	
30011/48011	Dew
30012/48012	Cond
48210	Comp average current
48214	Fan average current
Relays	
46001	Comp
46003	Fan
46005	Run
46006	Alarm
46007	Remote
46008	Antifreeze
46009	Drain

Switchs	
47013	HP
47014	LP
47015	Pre
47018	Remote
Alarms	
41121	Dew sensor alarm
41122	Cond sensor alarm
41123	H-pressure
41124	L-pressure
41125	Dew temp alarm
41126	Cond temp alarm
41129	Comp overload
41130	Comp phase loss
41133	Comp overheat
41135	Power phase loss
41136	Phase sequence alarm
41137	Fan overload
41138	Fan phase loss
41149	Parameter error

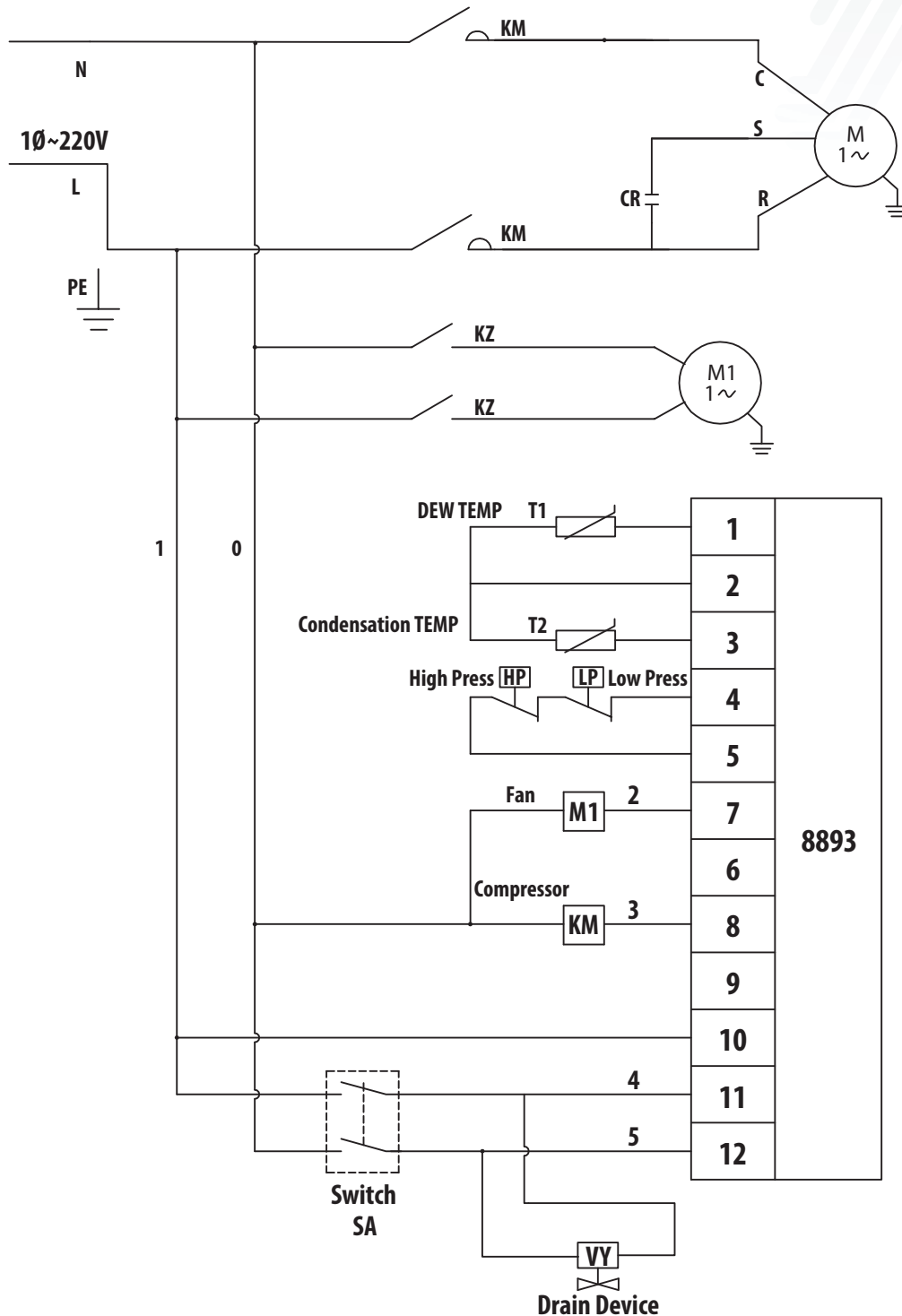
15. Wiring Diagram

15.1 DT-10A~30A



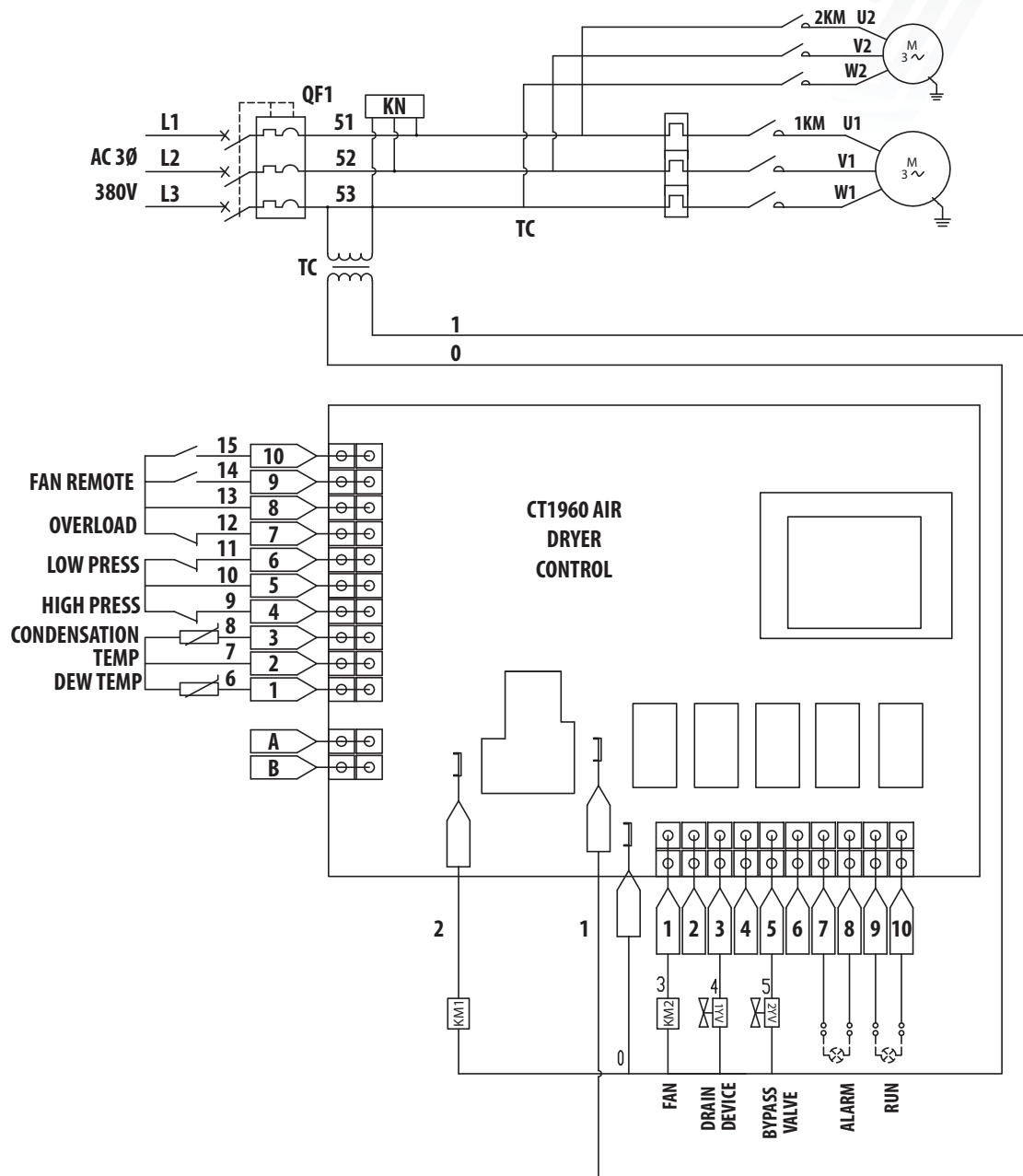
Wiring Diagram (cont.)

15.2 DT-40A~100A



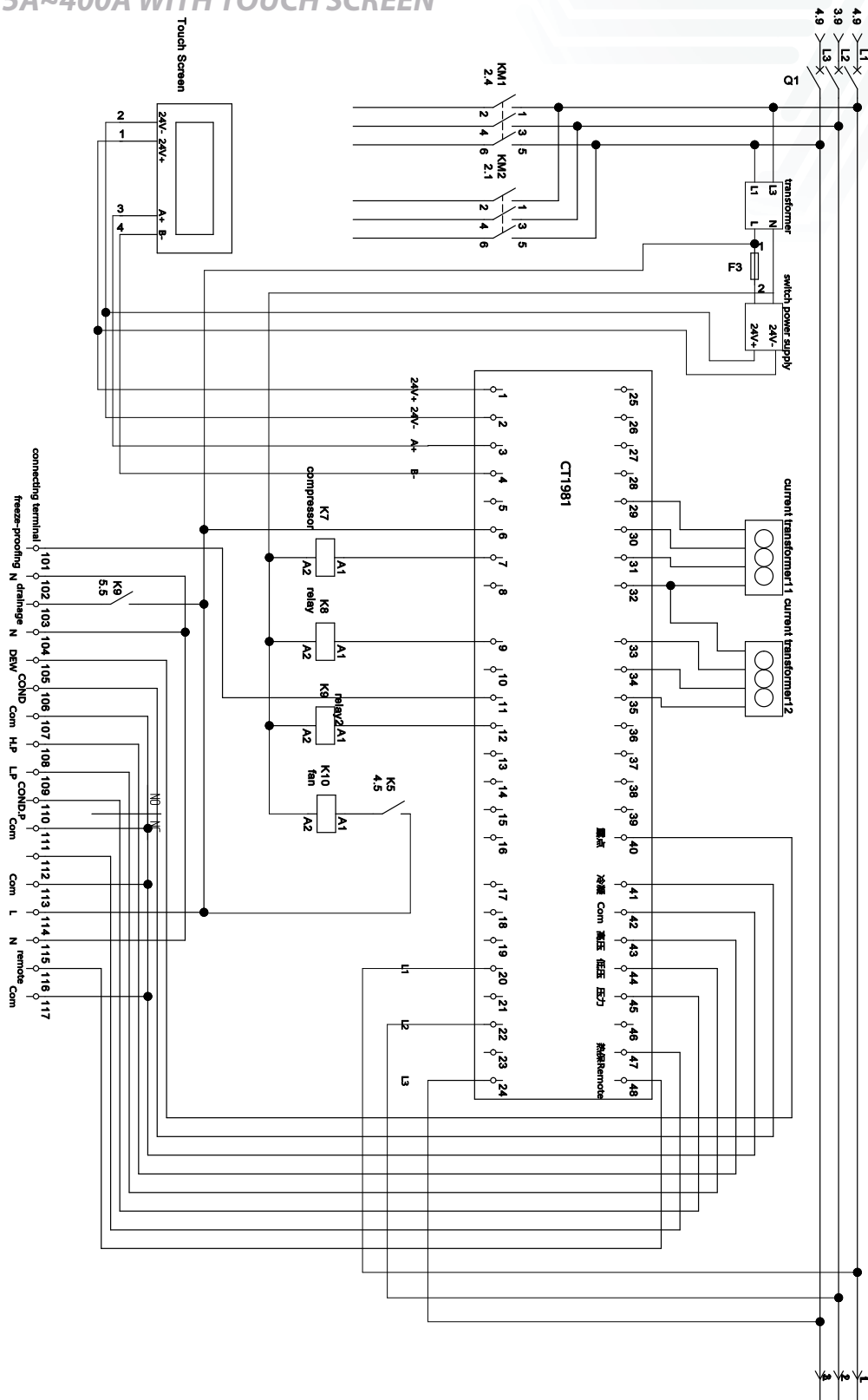
Wiring Diagram (cont.)

15.3 DT-125A~400A WITH TOUCH SCREEN



Wiring Diagram (cont.)

15.3 DT-125A~400A WITH TOUCH SCREEN



11. Notes

- Please use the temperature sensor supplied by Detroit Air only.
- If the compressor motor power is less than 1.5HP, it can be directly controlled by an internal relay. Otherwise, it needs to be connected via an AC contactor.
- Fan load must not exceed more than 200W.