MISSION CRITICAL South-Tek Systems

heatless desiccant air dryer user guide

table of contents

desiccant air dryers

1

1.1 general information

range: heatless desiccant air dryers
models: 003-276, 003-277, 003-278, 003-279, 003-280, 003-281, 003-282, 003-283
doc no: 17-100-0120-SOUTHTEK
issue: 005-2023

LLOYD'S REGISTER · LRQA
ISO 9001
UKAS MANAGEMENT SYSTEMS
001

annotations

CAUTIONS: indicate any situation or operation that may result in potential damage to the product, injury to the user, or render the product unsafe.

NOTES: highlight important sections of information where particular care and attention should be paid.

1.2 document introduction

This manual provides factory prescribed installation and maintenance procedures for a heatless desiccant compressed air dryer. The procedures illustrated in this document are only to be performed by authorized personnel. For further information regarding the procedures outlined in this document contact the manufacturer before proceeding. Be sure to read this document carefully before attempting to install or operate the dryer. This document should be permanently available at the dryer installation site and be kept in an easily accessible place alongside the dryer.

1.3 warranty guidelines

All products are supplied with a 2 year manufacturer's warranty from the date of purchase, when purchased without an ES (Energy Saving) system and installed and maintained in accordance with the manufacturers guidelines. Only genuine service parts should be used and no modifications made.

When purchased with an ES (Energy Saving) system and installed and maintained in accordance with the manufacturers guidelines the product will be supplied with an extended 5 year valve warranty. This is

1.4 packaging

All products are securely packaged in a specifically designed wooden packing box. The dryer will be held in a horizontal position by wooden struts; using straps to secure the product to the box base. The box top cover can be removed by removing the 4 fixing screws and lifting off in one piece.

1.5 damage to packaging

Check immediately to establish whether damage has occurred to the external packaging and if the damage extends to the product inside. If there is damage to a product, contact the relevant supplier immediately.

In no circumstances must a damaged product be used in operation. Using damaged products can lead to irreparable functional faults or cause serious physical harm.

The support packing box permits limited longitudinal stacking; however the central section of the packing box should not be considered load bearing.

1.6 general safety

No modifications must be made to the product. Any modifications may reduce the operational safety of the product and invalidate the manufacturer's warranty. This could potentially result in damage to the product and serious personal injury.

For your own safety, when carrying out work on this product, all relevant national safety regulations must be complied with relating to pressurized and electrical systems.

WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and/or birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

1.7 intended use of the product

The dryer is exclusively intended for the treatment of compressed air, which is free from bulk water, oil and solid matter constituents.

The product should be located within a building and protected from extreme conditions and weather. The dryer must be operated only in accordance with the data on the rating plate. Any operations that do not comply with those stated on the product rating label will render the warranty void.

This product is only designed to operate at pressures of between 4 to 16 barg (58 to 232 psig). It is not suitable for pressures in excess of 16 barg (232 psig).

IMPORTANT: It is essential that the system into which the dryer is installed is fitted with a pressure limiting/relief device. This device should be between the compressor and the dryer. The device must be set to prevent the maximum working pressure of 16 barg (232 psig) from being exceeded.

1.8 personnel

Only authorized, competent and trained personnel are permitted to work on this product. This user guide is intended solely for such personnel and is to be used only as a reference; it should not be used to replace conventional training.

1.9 safe handling

Please ensure the relevant safe engineering practices and handling procedures are employed when handling, installing and operating this product. Ensure that the equipment is depressurized and electrically isolated prior to carrying out any of the scheduled maintenance instructions specified within this user guide.

In no circumstances must a damaged product be used in operation. Using damaged products can lead to irreparable functional faults or cause serious physical harm.

A suitable lifting aid must be used to minimize the risk of physical injury or damage to the product.

1.10 technical description

The compressed air dryer uses the pressure swing adsorption principle of drying compressed air, utilizing two identical columns each containing a hygroscopic desiccant bed.

- Inlet filtration removes water, oil aerosols and particles (Inlet filtration supplied separately).
- Wet air enters the dryer through the inlet valve and is directed into one of the columns.
- Each column contains a densely filled desiccant cartridge.
- Air then passes through the desiccant cartridge where any remaining moisture is adsorbed.
- Simultaneously, a small amount of dry filtered air is counter flowed through the other desiccant cartridge and exhausted to atmosphere, removing the moisture and regenerating the desiccant bed.
- The dryer controller periodically switches columns after top end repressurization; ensuring a continuous supply of dry air at constant pressure. The dryer can also be controlled using a Zero Volt signal from the compressor. This energy saving feature senses when the compressor is switched off and stops the dryer operation until the compressor restarts.
- The dry air passes out through the final particulate filter (<1micron/ISO8573.1 Class 2).

1.11 product contents

when ordering a series 2 desiccant air dryer you will receive the following;

- 1 x dryer support base and box cover
- 1 x series 2 compressed air dryer
- 1 x user guide
- 1x declaration of conformity

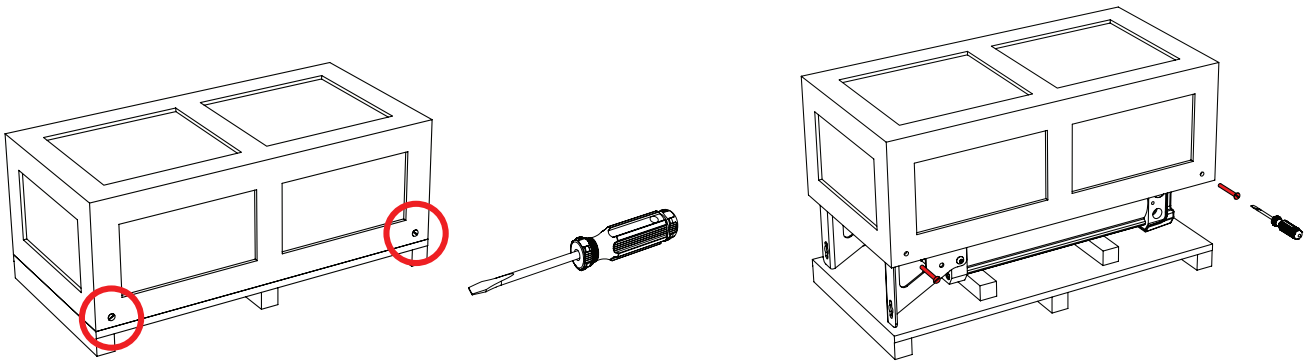


Figure 1: Contents Layout

desiccant air dryers

2.1 technical specification

specifications	standard	optional
maximum water content (ISO class) (4)	class 2 -40°C (-40°F) pdp	class 1: -70°C (-94°F) pdp
minimum operating pressure	4 barg (58 psig)	-
maximum operating pressure	16 barg (232 psig)	-
recommended operating temp range	1.5 to 35°C (35 to 95°F)	-
design operating temperature range	1.5 to 50°C (35 to 122°F)	-
power supply requirements	100 to 240V AC @ 50 or 60 Hz	24V DC

All dryers should be proceeded by a coalescing filter regardless of oil or oil free applications, a 0.01mg/m1 grade coalescing filter must be installed on the inlet to the dryer.

2.2 flow rates

model	inlet flow rate		connection	
	Nm^3/hr	scfm	inlet	outlet
003-276	58	34.1	1” BSPP or NPT	1” BSPP or NPT
003-277	70	41.2		
003-278	90	52.9		
003-279	112	65.9		
003-280	150	88.2		
003-281	180	105.9		
003-282	224	131.8		
003-283	301	177.1		

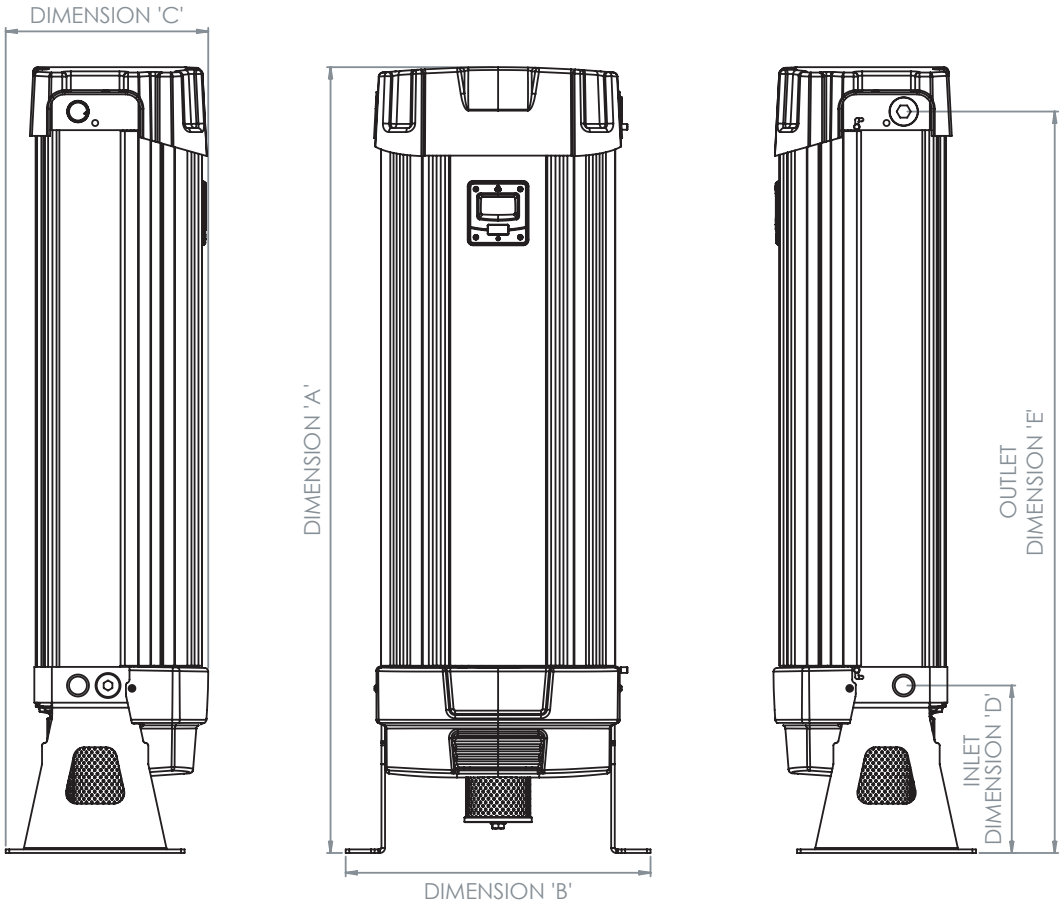
2.3 correction factors

inlet air pressure	barg	4	5	6	7	8	9	10	11	12	13	14	15	16
	psig	58	72	87	101	116	130	145	159	174	188	203	217	232
correction factor		0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.01	2.13

inlet air temperature	°C	25	30	35	40	45	50
	°F	77	86	95	104	113	122
correction factor		1.00	1.00	1.00	0.97	0.88	0.73

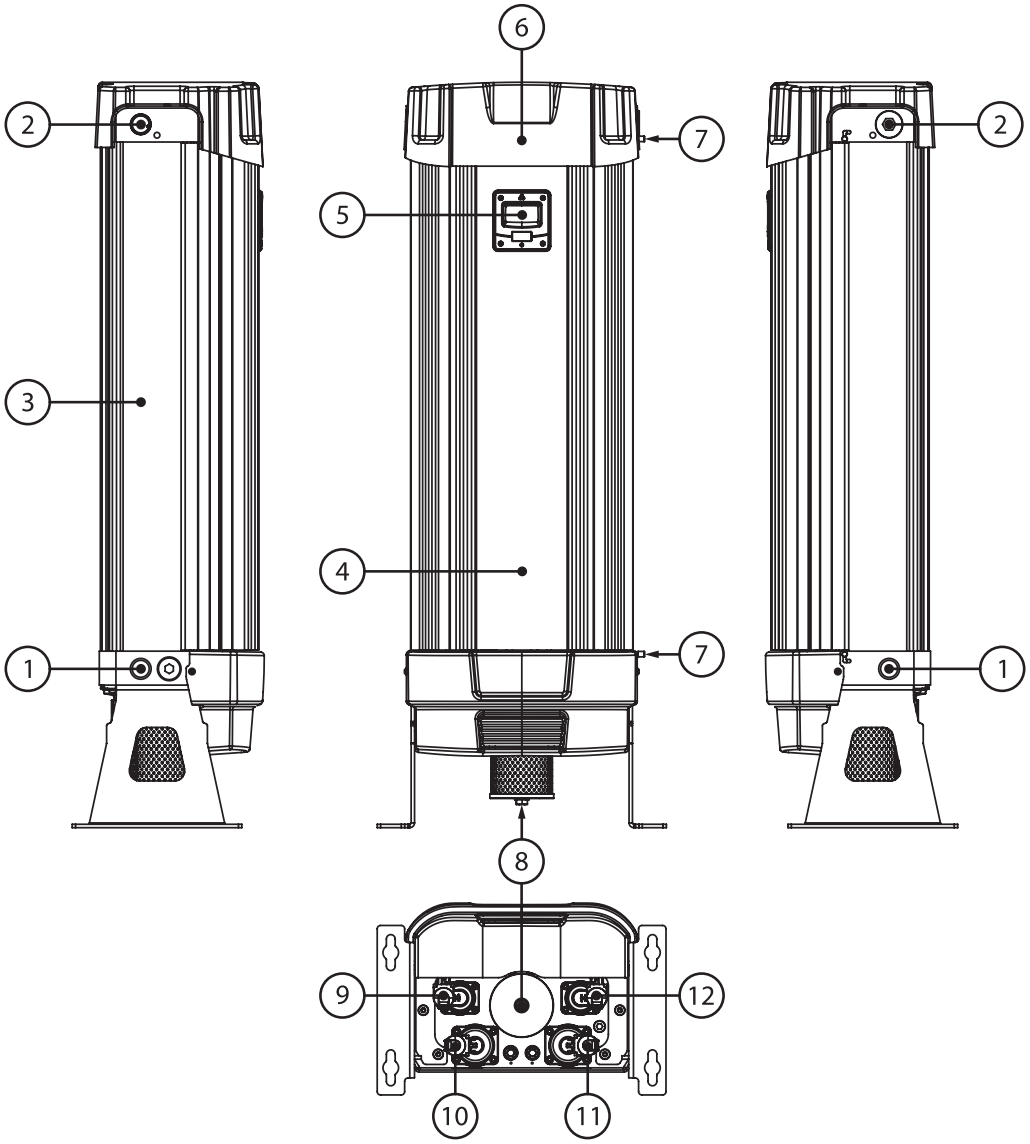
pressure dew point	°C	-20	-40	-70
	°F	-4		-94
correction factor		1.10	1.00	0.70

2.4 product dimensions



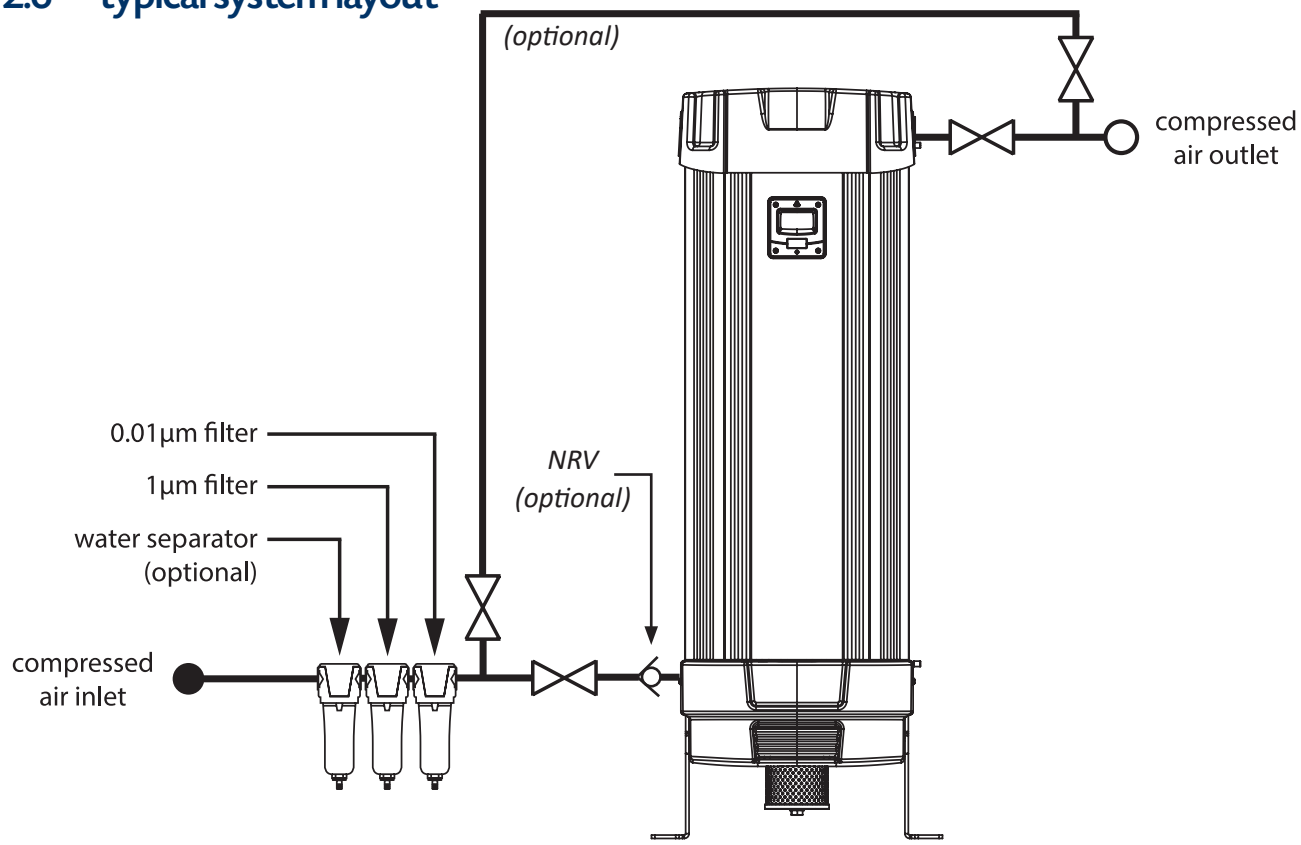
model	dimension										weight	
	A		B		C		D		E			
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	kg	lbs
003-276	743	29.25	426	16.77	283	11.14	234	9.21	681	26.81	47.0	104
003-277	743	29.25							681	26.81	47.0	104
003-278	923	36.34							861	33.90	58.0	128
003-279	923	36.34							861	33.90	58.0	128
003-280	1098	43.23							1036	40.79	70.5	155
003-281	1248	49.13							1186	46.69	82.5	182
003-282	1498	58.97							1436	56.53	95.5	210
003-283	1848	72.75							1786	70.31	117.5	259

2.5 product overview



number	description	number	description
1	compressed air inlet	7	shroud latches
2	air outlet	8	external exhaust silencer
3	dryer column	9	exhaust valve ‘A’
4	dryer shroud	10	inlet valve ‘A’
5	dryer control panel display	11	inlet valve ‘B’
6	dryer top cover	12	exhaust valve ‘B’

2.6 typical system layout



IMPORTANT: It is essential that the system into which the dryer is installed is fitted with a pressure limiting/relief device. This device should be installed between the compressor and the dryer.

IMPORTANT: Inlet valves have a single direction flow. Any reverse flow of these valves can cause irreparable damage to the valve diaphragms.

2.7 site location

When selecting an installation site for the dryer, ensure the following conditions are met:

- Installation site should be located indoors on a flat surface protected from the weather and other harmful conditions.
- The ambient temperature must not drop below 1.5°C (34.7°F) or exceed 50°C (122°F).
- The installation site should be level and able to support the weight of the product.
- Ensure sufficient space around the product, to allow access for operation and maintenance.
- Take into account the noise generated by the dryer exhausting while in use when considering location.

2.8 electrical installation

To install the mains power cable:

- Remove the two M5 screws from the top cover and lift away from the dryer.
- Locate the two latches on the top and bottom manifold and pull in the opposite direction to each other to open the shroud, this will then expose the controller (See Fig 1.)
- Remove the IEC plug from the controller socket (See Fig 2.)
- Unscrew the cap head screw to remove the IEC plug top cover.
- Feed the mains power cable through the cable glands located near the bottom of the shroud.
- Wire the mains power cable into the IEC plug (See Fig 3.)
- Once the mains cable is correctly wired into the IEC plug, re-fit the IEC plug top cover and cap head screw.
- Reattach the IEC plug into the controller socket, securing with the swing clip.
- Close the shroud and pull the two latches back into position and refit the top cover and secure with M5 screws.

IMPORTANT: Ensure the mains is isolated/switched off prior to the service of the product. Under no circumstances should the controller be used without being fitted to the product. This product should be connected to a grounded, metallic, permanent wiring system or an equipment-grounding terminal or lead.

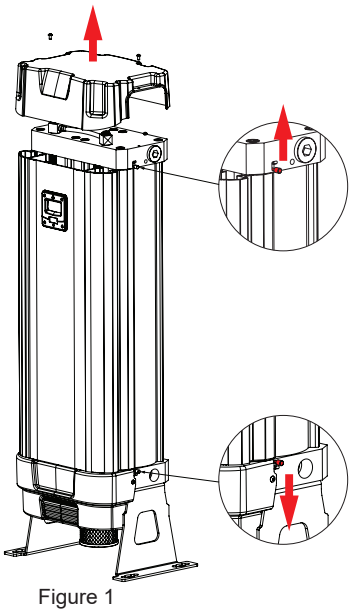


Figure 1

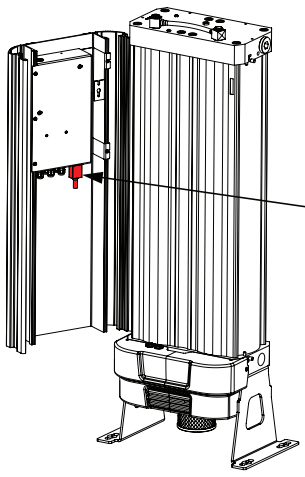


Figure 2

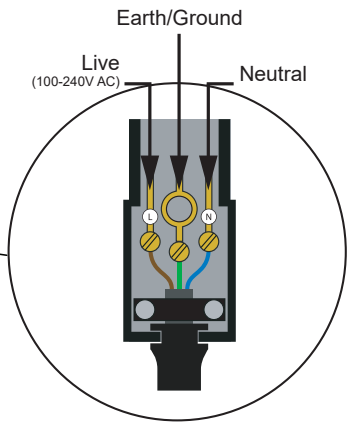


Figure 3

IMPORTANT: This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. Check with a qualified electrician or serviceman when the grounding instructions are not completely understood, or when in doubt as to whether the product is properly grounded. Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.

2.9 remote start/stop control

To gain access to the remote start/stop feature:

- Remove the two M5 screws from the top cover and lift away from the dryer.
- Locate the two latches on the top and bottom manifold and pull in the opposite direction to each other to open the shroud, this will then expose the controller (See Fig 1.)
- Remove the insulation from the flying lead (See Fig 4.)
- There are six wires;
  1. Brown Wire - 24V DC Output
  2. Blue Wire - 24V DC Output
  3. Black Wire - Remote Start/Stop Input
  4. White Wire - Alarm Input (Zero volt contact)
  5. Green Wire - Alarm Output (Zero volt contact)
  6. Red Wire - Remote Stop Input
- To set up the Remote Start/Stop control, remove/break the connection between the brown and Black wires and connect externally to a remote switch or relay.
- A 24V DC Output must be connected to the Black wire to enable the dryer to operate, if the connection is broken or if there is no voltage the dryer will switch off and revert to standby mode, displaying “REMOTE STOP ACTIVE” on the controller display.

Under no circumstances should an external voltage or current be applied to any of these wires, as damage to the control system will occur, negating the warranty.

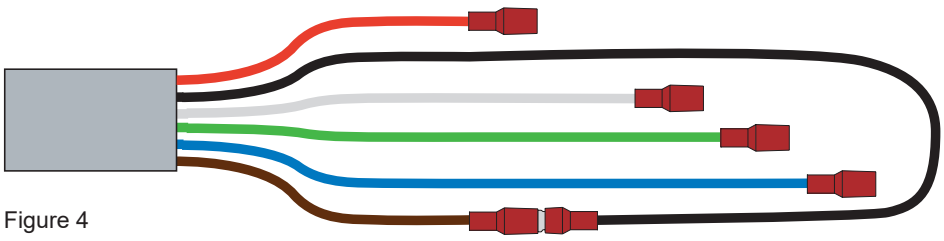


Figure 4

2.10 remote stop control

To gain access to the remote stop feature:

- Remove the two M5 screws from the top cover and lift away from the dryer.

- Locate the two latches on the top and bottom manifold and pull in the opposite direction to each other to open the shroud, this will then expose the controller (See Fig 1.)

- Remove the insulation from the flying lead (See Fig 3.)

- There are six wires;
  1. Brown Wire - 24V DC Output
  2. Blue Wire - 24V DC Output
  3. Black Wire - Remote Start/Stop Input
  4. White Wire - Alarm Input (Zero volt contact)
  5. Green Wire - Alarm Output (Zero volt contact)
  6. Red Wire - Remote Stop Input

- To set up the Remote Stop control, make a connection between the red and blue wire, when a connection is detected the dryer will automatically shut down. Break the connection to allow the dryer to start again.

- A 24V DC Output must be connected to the Black wire to enable the dryer to operate, if the connection is broken or if there is no voltage the dryer will switch off and revert to standby mode, displaying “REMOTE STOP ACTIVE” on the controller display.

2.11 dryer operation

Do not allow the dryer to flow air unless switched on and cycling. Resulting effect could be desiccant contamination; requiring replacement of desiccant cartridges.

- Ensure all pipe work is connected as per section 8 and the dryer is securely hardwired into the electrical supply.
- Ensure the inlet operating pressure parameters are between 4 and 16barg (58 and 232 psig).
- Ensure the inlet air temperature is between 2°C and 50C (35°F and 122°F).
- Turn on the power to the dryer, the dryer will display its' status.
- Slowly open the inlet valve and allow the dryer to pressurize.
- Check for leaks and rectify if any are found.
- Allow the dryer to cycle at least 2 times before slowly opening the outlet valve.
- In case of using the Remote Start/Stop function, ensure external voltage is active.

2.12 control panel displays

1	Power-up Display (only visible on power start-up for 10 seconds)	

	During power-up the screen will display:
	• Program operation;
	  • If (S) is shown: standard -40°C (-40°F) operation
	  • If (L) is shown: low dew point -70°C (-94°F) operation
	• Program number followed by the revision.
	• Total hours dryer has operated.
		(S) STARTING
		99-100-0200-M04
		Total Hours: 00000
		x10,000: 00000

2	Normal Operation Display	

	During normal operation the screen will display:
	• Column 'A' status and Column 'B' status, this will be shown as one of three sequences;
	  • ONLINE; this column is flowing
	  • PURGE; this column is regenerating
	  • READY; this column is waiting to switch
	• Hours the dryer has run between services
		Column A - ONLINE
		Column B - PURGE
		Hours Run: 00000

3	Service Re-set Display	

	When servicing the dryer, you will be required to re-set the service hours run counter. When holding a magnet to the specified area on the shroud for 10seconds the screen will display;
	• Column 'A' status and Column 'B' status, this will be shown as one of three sequences;
	  • ONLINE; this column is flowing
	  • PURGE; this column is regenerating
	  • READY; this column is waiting to switch
	• 'SERVICE RE-SET' will appear once the service hours run counter has reverted back to 0.
		Column A - ONLINE
		Column B - READY
		SERVICE RE-SET

4	Normal Operation Display (ES Models)	

	During normal operation of an ES enabled dryer the screen will display:
	• Column 'A' status and Column 'B' status, this will be shown as one of three sequences;
	  • ONLINE; this column is flowing
	  • PURGE; this column is regenerating
	  • READY; this column is waiting to switch
	• Hours the dryer has run between services/hours in ES mode
	• Constantly updated pressure dew point reading.
	This can be displayed in either degrees celsius or degrees fahrenheit depending on how the controller is configured.
	
	Speak to the manufacturer about your requirements.
		Column A - ONLINE
		Column B - PURGE
		Hours Run: 00000
		-040 DEG C PDP
		
		Column A - ONLINE
		Column B - PURGE
		Hours Run: 00000
		-040 DEG F PDP

5	Energy Saving Mode Active Display	
	While energy saving mode is active the screen will display: • Column 'A' status and Column 'B' status, this will be shown as; • ONLINE; this column is flowing • 'ENERGY SAVING MODE' • Hours the dryer has run between services/hours in ES mode • Constantly updated dew point reading, this can be displayed in either degrees celsius or degrees fahrenheit.	Column A - ONLINE ENERGY SAVING MODE Hours In ES: 00000 -040 DEG C PDP
6	Dew point Sensor Fault Display	
	If a fault occurs with the dew point sensor or the connection to the dew point sensor, the screen will display; • Column 'A' status and Column 'B' status • Hours the dryer has run between services/hours in ES mode • 'DEWPT SENSOR FAULT'	Column A - ONLINE Column B - READY Hours Run: 00000 DEWPT SENSOR FAULT
7	Dew point Alarm Display	
	If the dew point sensor reading falls below the desired alarm limit the screen will display; • Column 'A' status and Column 'B' status • Hours the dryer has run between services/hours in ES mode • 'DEWPOINT ALARM'	Column A - ONLINE Column B - READY Hours Run: 00000 DEWPOINT ALARM
8	Energy Savings Adjustment Display	
	When adjusting the ES set-point the screen will display; • 'Upper Limit' this is the point which the dryer de-activates ES mode. • 'Lower Limit' this is the point which the dryer activates ES mode. • 'Alarm Limit' this is the point which the dryer will activate the dew point alarm and remote alarms.	-ES ADJUSTMENT- Upper Limit:-00040 Lower Limit:-00042 Alarm Limit:-00030

2.13 monitoring dryer performance

- The dew point is displayed on the display of the control panel. When the pressure dew point displayed is better than -42°C (-44°F) PDP the dryer will switch into energy saving mode and stop cycling, resulting in zero purge, but no interruption in flow. When the dew point degrades to -40°C (-40°F) the dryer will restart cycling ensuring the dew point is maintained at or better than -40°C (-40°F).

- If, during normal operation, the dryer fails to achieve dew point (falls below -30°C (-22°F)) the alarm output will be indicated on the front screen and the remote alarm output will activate.

- The set levels for the ES and dew point alarm are adjustable and can be accessed by carefully removing the front bezel to expose the PLC and adjustment buttons (see Figure1.)

- Hold buttons A & B down for 8 seconds to access the menu shown on page 17 display 8.

- Select the line you want to adjust by using the up down buttons, then press ok. The digits will flash and can be changed again using the up/down buttons.

- When set, press ok to store then move to the next line.

- The screen will exit after 60 seconds or when escape is pressed.

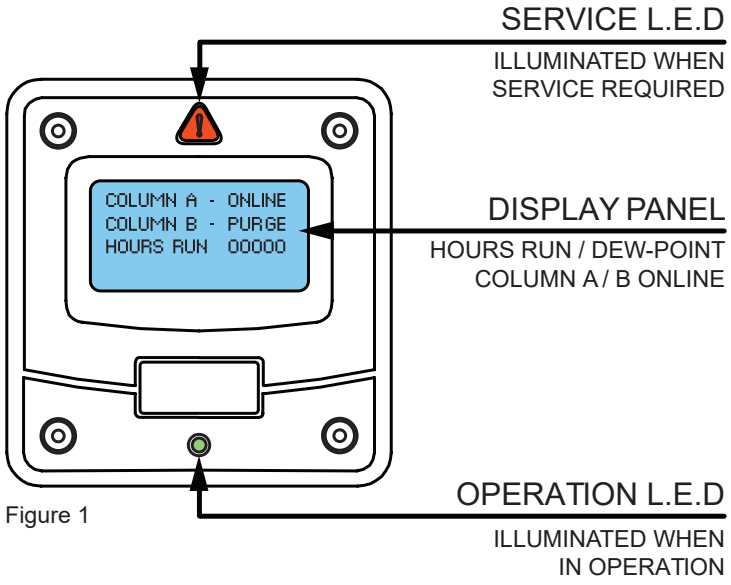


Figure 1

Beware this is only an example as the dew point set-points and alarms are adjustable through the display panel.

2.14 shutdown procedure

- Close both the inlet and outlet valves ensure the dryer is completely isolated.

The dryer will still be pressurized! In order to depressurize the dryer; ensure the dryer is isolated from the compressed air supply source.

- Cycle the dryer at least twice to ensure the dryer exhausts and is completely depressurized.
- When fully depressurized the ‘clicking’ of the exhaust valves will be heard but no air exhausted.
- When the dryer is fully depressurized, isolate from the electrical supply.

3.1 maintenance

Maintenance operations should only be carried out by authorized, suitably trained personnel.

- Maintenance operation should only be conducted when the system has been shut down and fully depressurized.
- All connections must be isolated and removed with care, paying particular attention to the areas that become pressurized.
- Do not modify or adjust the control settings.
- Only certified and approved replacement parts should be used.
- Always check all connections for leakage and secure seating.
- Ensure all loose parts are removed or secured to the dryer before operation.

3.2 cleaning

Clean the equipment with a damp cloth only and avoid excessive moisture around any electrical connections. If required a mild detergent may be used, however do not use abrasives or solvents as these may cause damage.

3.3 daily checks

- Check the dryers for any external damage.
  (*assess and eliminate any defects found*)
- If the red service light appears, the dryer must be serviced to ensure the best air quality possible.
  (*contact the service provider and request a service kit for the product,)*
- Remove any loose dust or dirt from the dryer, clean all surfaces that appear to have attracted unwanted contaminants.
- Check the dew point sensor display (if option if fitted). If the dew point is not maintained at <-30°C (<-22°F) the reading on the display will alternate with 'DEWPOINT ALARM' every 5 seconds. The no-volt alarm will also activate.
  (*contact the service provider and request a service kit for the product)*
- Always check all connections for leakage and secure seating.
- Ensure all loose parts are removed or secured to the dryer before operation.

3.4 servicing guidelines

- Maintenance operation should only be conducted when the system has been shut down and fully depressurized.
- Isolate the dryer from the compressed air and electrical supply ensuring the system is in a safe condition for maintenance to be carried out on.
- All connections must be removed with care, paying particular attention to the areas that become pressurized.
- All gasket seals removed during maintenance operations must be replaced with new gaskets.
- Only certified and approved replacement parts should be used.
- Do not modify or adjust the control settings.
- Always check all connections and sealing faces for cleanliness and secure seating prior to assembly.
- Ensure all components are re-fitted to the product before operation.
- Always check all connection and sealing faces for any leakage, if any found resolve and check again.
- Ensure the dryer is left operating in a safe working condition after completion of maintenance.

3.5 service schedule and breakdown

service	year 1 (12 months)	year 2 (24 months)	year 3 (36 months)	year 4 (48 months)	year 5 (60 months)	year 6 (72 months)	year 7 (84 months)	year 8 (96 months)
A	✓	✓	✓	✓	✓	✓	✓	✓
B		✓		✓		✓		✓
C				✓				✓
D (ES MODELS ONLY)	✓	✓	✓	✓	✓	✓	✓	✓

When contacting your service provider be sure to provide the part number and serial number of your dryer, this can be found on the rating plate located top right hand side of the dryer.

- **Service A** - Every 1 year (12 months)
  Replace external exhaust silencer/muffler element
  Applicable to all models

- **Service B** - Every 2 year (24 months)
  Replace desiccant cartridges
  Replace top manifold gasket seals
  Applicable to 003-276 through 003-282 (003-283 optional)

  Replace loose fill desiccant and top cap filtration
  Replace top manifold gasket seals
  Applicable to 003-283

- **Service C** - Every 4 year (48 months)
  Replace exhaust valves
  Replace inlet valves
  Replace outlet valves
  Replace solenoid coils
  Applicable to all models

- **Service D** - Every 1 year (12 months)
  Calibrate dew point sensor
  Applicable to ES models only

3.6 service kits and spares

model	service A	service B		service C		service D	
		standard -40°C (-40°F)	low dew point -70°C (-94°F)	normally closed inlet valves	normally open inlet valves	standard -40°C (-40°F)	low dew point -70°C (-94°F)
003-276	ESK-130	003-303	NDK-060-LDP	NOKC-100-024	NOKO-100-024	NSK-130	NSK-130-LDP
003-277		003-304	NDK-070-LDP				
003-278		003-305	NDK-080-LDP				
003-279		003-306	NDK-090-LDP				
003-280		003-307	NDK-100-LDP				
003-281		003-308	NDK-110-LDP	NOKC-130-024	NOKO-130-024		
003-282		003-309	NDK-120-LDP				
003-283		003-310	NDA-130-LDP-1				

kit number	description	kit contents
ESK-130	Replacement exhaust silencer/muffler element	(x1) Exhaust Silencer/Muffler Element
003-303	Replacement desiccant cartridges for 003-276	(x2) Desiccant Cartridge (x2) Gasket Seals
NDK-060-LDP	Replacement desiccant cartridges for NDL/NDM-060 LDP	
003-304	Replacement desiccant cartridges for 003-277	
NDK-070-LDP	Replacement desiccant cartridges for NDL/NDM-070 LDP	
003-305	Replacement desiccant cartridges for 003-278	
NDK-080-LDP	Replacement desiccant cartridges for NDL/NDM-080 LDP	
003-306	Replacement desiccant cartridges for 003-279	
NDK-090-LDP	Replacement desiccant cartridges for NDL/NDM-090 LDP	
003-307	Replacement desiccant cartridges for 003-280	
NDK-100-LDP	Replacement desiccant cartridges for NDL/NDM-100 LDP	
003-308	Replacement desiccant cartridges for 003-281	
NDK-110-LDP	Replacement desiccant cartridges for NDL/NDM-110 LDP	

desiccant air dryers

kit number	description	kit contents
003-309	Replacement desiccant cartridges for 003-282	(x2) Desiccant Cartridge (x2) Gasket Seals
NDK-120-LDP	Replacement desiccant cartridges for NDL/NDM-120 LDP	
003-310	Replacement desiccant cartridges for 003-283	
NDK-130-LDP	Replacement desiccant cartridges for NDL/NDM-130 LDP	
NDA-130-1	Replacement desiccant & top cap filtration for NDL/NDM-130	(x2) Desiccant kits (x2) Top Cap Filters (x2) Gasket Seals
NDA-130-LDP-1	Replacement desiccant & top cap filtration for NDL/NDM-130 LDP	
EVKC-130	Replacement exhaust valves for NDL/NDM-060 to 130	(x2) Exhaust Valves
EVKC-130-024	Replacement exhaust valves and coils for NDL/NDM-060 to 130	(x2) Exhaust Valves (x2) 24V DC Coils
EVKC-130-110		(x2) Exhaust Valves (x2) 110V AC Coils
EVKC-130-240		(x2) Exhaust Valves (x2) 240V AC Coils
IVKC-100	Replacement normally closed inlet valves for NDL/NDM-060 to 100	(x2) N/C Inlet Valves
IVKC-100-024	Replacement normally closed inlet valves and coils for NDL/NDM-060 to 100	(x2) N/C Inlet Valves (x2) 24V DC Coils
IVKC-100-110		(x2) N/C Inlet Valves (x2) 110V AC Coils
IVKC-100-240		(x2) N/C Inlet Valves (x2) 240V AC Coils
IVKO-100	Replacement normally open inlet valves for NDL/NDM-060 to 100	(x2) N/O Inlet Valves
IVKO-100-024	Replacement normally open inlet valves and coils for NDL/NDM-060 to 100	(x2) N/O Inlet Valves (x2) 24V DC Coils
IVKO-100-110		(x2) N/O Inlet Valves (x2) 110V AC Coils
IVKO-100-240		(x2) N/O Inlet Valves (x2) 240V AC Coils
IVKC-130	Replacement normally closed inlet valves for NDL/NDM-110 to 130	(x2) N/C Inlet Valves
IVKC-130-024	Replacement normally closed inlet valves and coils for NDL/NDM-110 to 130	(x2) N/C Inlet Valves (x2) 24V DC Coils
IVKC-130-110		(x2) N/C Inlet Valves (x2) 110V AC Coils
IVKC-130-240		(x2) N/C Inlet Valves (x2) 240V AC Coils
IVKO-130	Replacement normally open inlet valves for NDL/NDM-110 to 130	(x2) N/O Inlet Valves

kit number	description	kit contents
IVKO-130-024	Replacement normally open inlet valves and coils for NDL/NDM-110 to 130	(x2) N/O Inlet Valves (x2) 24V DC Coils
IVKO-130-110		(x2) N/O Inlet Valves (x2) 110V AC Coils
IVKO-130-240		(x2) N/O Inlet Valves (x2) 240V AC Coils
RCK-024	Replacement solenoid coils	(x2) 24V DC Coils
RCK-110		(x2) 110V AC Coils
RCK-240		(x2) 240V AC Coils
OVK-130	Replacement outlet valves	(x2) Complete Outlet Valves
OVSK-130	Replacement outlet valve seals	(x2) Outlet Valve Seal Set
NOKC-100-024	Replacement valve overhaul kit for NDL/NDM-060 to 100 (normally closed)	(2x) Exhaust Valves (2x) N/C Inlet Valves (x2) Outlet Valves (x4) 24V DC Coils
NOKC-100-110		(2x) Exhaust Valves (2x) N/C Inlet Valves (x2) Outlet Valves (x4) 110V AC Coils
NOKC-100-240		(2x) Exhaust Valves (2x) N/C Inlet Valves (x2) Outlet Valves (x4) 240V AC Coils
NOKO-100-024	Replacement valve overhaul kit for NDL/NDM-060 to 100 (normally open)	(2x) Exhaust Valves (2x) N/O Inlet Valves (x2) Outlet Valves (x4) 24V DC Coils
NOKO-100-110		(2x) Exhaust Valves (2x) N/O Inlet Valves (x2) Outlet Valves (x4) 110V AC Coils
NOKO-100-240		(2x) Exhaust Valves (2x) N/0 Inlet Valves (x2) Outlet Valves (x4) 240V AC Coils
NOKC-130-024	Replacement valve overhaul kit for NDL/NDM-110 to 130 (normally closed)	(2x) Exhaust Valves (2x) N/C Inlet Valves (x2) Outlet Valves (x4) 24V DC Coils
NOKC-130-110		(2x) Exhaust Valves (2x) N/C Inlet Valves (x2) Outlet Valves (x4) 110V AC Coils
NOKC-130-240		(2x) Exhaust Valves (2x) N/C Inlet Valves (x2) Outlet Valves (x4) 240V AC Coils
NOKO-130-024	Replacement valve overhaul kit for NDL/NDM-110 to 130 (normally open)	(2x) Exhaust Valves (2x) N/O Inlet Valves (x2) Outlet Valves (x4) 24V DC Coils
NOKO-130-110		(2x) Exhaust Valves (2x) N/O Inlet Valves (x2) Outlet Valves (x4) 110V AC Coils
NOKO-130-240		(2x) Exhaust Valves (2x) N/0 Inlet Valves (x2) Outlet Valves (x4) 240V AC Coils
NSK-130	Dew point sensor calibration for standard -40°C (-40°F) sensors	(x1) Calibration
NSK-130-LDP	Dew point sensor calibration for standard -70°C (-94°F) sensors	
ESU-130	Energy Saving Upgrade Kit	(x1) Dew point Sensor (x1) Sensor Lead

4.1 service record

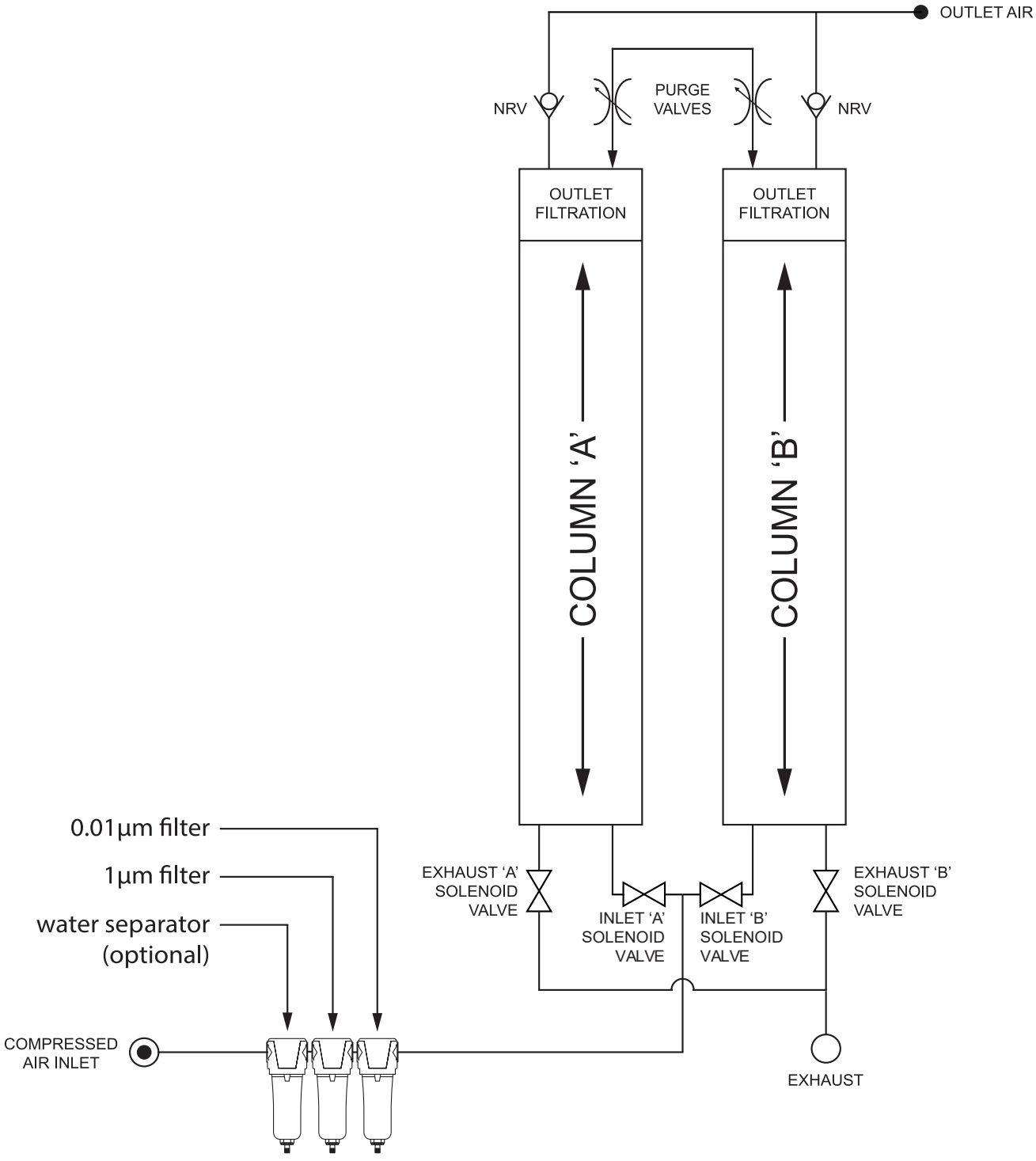
part number	serial number
installed by	**installation date**

service interval	hours run (if applicable)	date	serviced by		comments / observations
			print	sign	
year 1					
year 2					
year 3					
year 4					
year 5					
year 6					
year 7					
year 8					
year 9					
year 10					
year 11					
year 12					

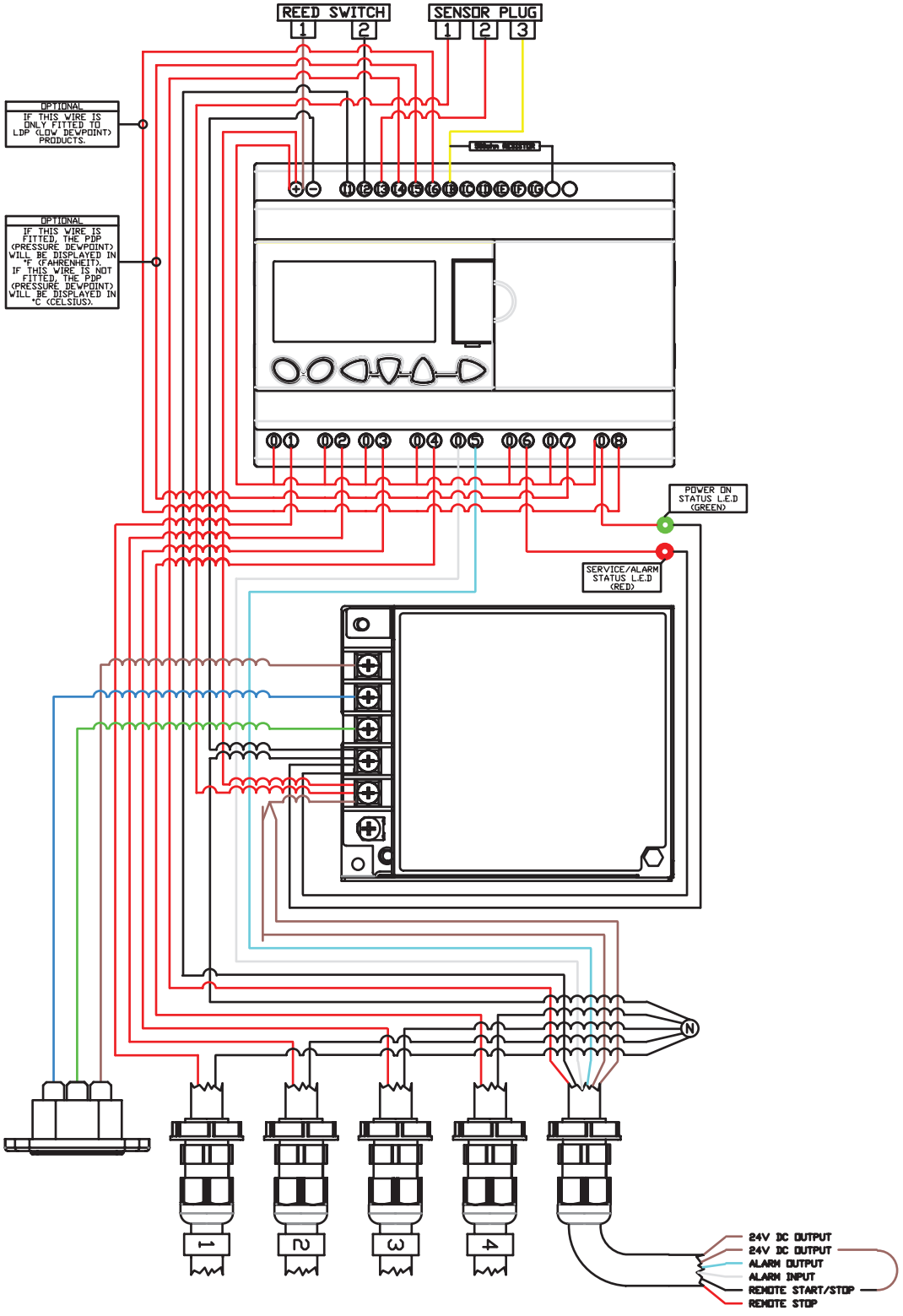
4.2 trouble shooting

problem	problem caused	solution
Poor dew point performance	Insufficient inlet pressure	Inlet pressure should be a minimum of 4barg (58psig) if not then adjust inlet pressure settings.
	Electrical fault	Ensure the power is on and the dryer front panel is illuminated; check the dryer is cycling correctly
	Moist or contaminated desiccant	Eliminate the cause of contamination, replace desiccant cartridges (do not re-use).
	Excessive inlet air temperature	Check against the technical specification
	Insufficient purge air	Purge incorrectly adjusted, consult the service personnel to adjust settings (factory pre-set).
	Exhaust silencer blocked	Replace exhaust silencer/muffler element.
Failure of dryer to cycle	Controller not functioning correctly	ensure the controller is powered up, check the on screen column status to ensure it is powering the solenoid valves during operation
	Insufficient inlet pressure	Inlet pressure should be a minimum of 4barg (58psig) if not then adjust inlet pressure settings.
	Controller not illuminated	Check power supply to the dryer, check fuse and replace.
	Failure to de-pressurize when cycling	Solenoid valve not functioning correctly; if there is power to the coil, replace valve.
	Outlet flow stops	Check inlet air supply
	Failure to initialize dryer	Switch off and restart dryer. Ensure dryer is pressurized before powering up to allow the dryer to initialize before operation.
	Erratic air flow from exhaust	Faulty or damaged valves, carry out service

4.3 process and instrumentation diagram



4.4 wiring diagram



notes

South-Tek Systems
www.southteksystems.com
Tel (888) 526-6284