



Mobile Welding Fume Extractor

KSZ-1.5S

Operation and Maintenance Manual

Esseti New Zealand Limited Ltd

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1. Product Profile

Supplier of Esseti New Zealand Limited Ltd is a professional company which specializes in air purification machines' research & development, manufacturing, project design and installation. The company introduced advanced technologies from Germany, Sweden, etc. and use imported parts in manufacturing. Our products are widely used in welding, casting, metal cutting, grinding, wood processing, paper making, ceramics, tobacco, chemical and so on.

Incorporated world leading environmental technology, double working bay double filter cartridge fume extractor is a technically advanced industrial dust & fume extractor, it's developed with full consideration of the forming, characteristics and harm of fume and based on actual conditions of cutting and welding workshop. This product adopted world leading technique of PTFE coating micro particle filtration, filtration efficiency reaches 99.99%, meanwhile maintains a high air flow; the extractor can clean dust automatically. It is ideal for purifying dry, oil-free, non-corrosive fume mixture generated in cutting and welding, collecting rare metals and valuable materials. Compared with the same product in the world, it's quite worthwhile in terms of quality and price.

2. Technical Data

No.	Item	Parameter
1	fan type	centrifugal fan
2	treatment of air flow	1500±100 m ³ /h
3	motor power	1.5 kW

4	power supply	3×415V/50Hz
5	filtration area	10 m ²
6	number of cartridge filters	1 pieces
7	filter medium	Polyester+PTFE
8	filtration efficiency	>99.9%
9	solenoid valve	1 piece
10	compressed air	5~6 bar
11	ash hopper volume	15L
12	noise	≤74±5dB(A)
13	suction arm	1*3m & DN160mm
14	weight	210±5kg
15	Dimensions (Excluding arm)	700(L)×800(W)×1600(H)mm

3. How it Works

Separation: dust laden fume are sucked into the extractor by the suction force induced by fan's working, with deflector fume's flowing speed is slowed, big practical and sparks are cooled, separated and then settle into dust collector. Fine fume and dust enter into filter compartment to be filtered by the filter cartridge. The filter cartridge is coated with PTFE film which is covered with uniform pores, it has good air permeability, and dusts are filtered out on its surface. Purified air enters into the filter cartridge's interior and then discharged into workshop directly or out of the

workshop through pipe line.

Cleaning: when dusts accumulate continuously on filter cartridge's surface, the pressure difference between its interior and exterior will increase steadily, when the pressure difference reach pre-set value(1500Pa), the pulse valve will open, dry, oil-free compressed air rush into the reverse blow cleaning system. The system rotate and high pressure air stream jet at the interior of filter cartridge, blow off dusts accumulated on the filter cartridge's surface, dusts fall into dust collector under gravity, thus the whole cartridge's surface is cleaned.

This extractor can be automatically cleaned and manually cleaned, automatically cleaning is as following:

1. When air pressure difference reach 1500Pa between the interior and exterior of the filter cartridge, the system will implement interval rotation pulse blow cleaning.
2. When the fan stops working, the system will implement rotation pulse blow cleaning for ten times.

4. Operation Instructions

- 1) Please carefully read the instruction manual before using the extractor, check whether voltage of power supply match that indicated in the instruction manual (3×415V/50Hz,voltage fluctuation $\pm 10\%$),plug the power plug into power socket.
- 2) Please check whether dry, oil-free compressed air supply has been connected to the extractor, make sure the air pressure to be 0.5-0.6Mpa, no leakage is allowed.
- 3) After making sure the power supply is three phase, turn the power switch to "ON" to connect power supply. If the panel indicator show red light, it means there is fault, please read alarm screen and solve it. If the panel indicator show green light, it means the purifier is in normal condition, press the button "F1" on the panel,

then the fan is started, and suction force is induced at the opening of the suction arm.

4) Display panel and its setting are as following:

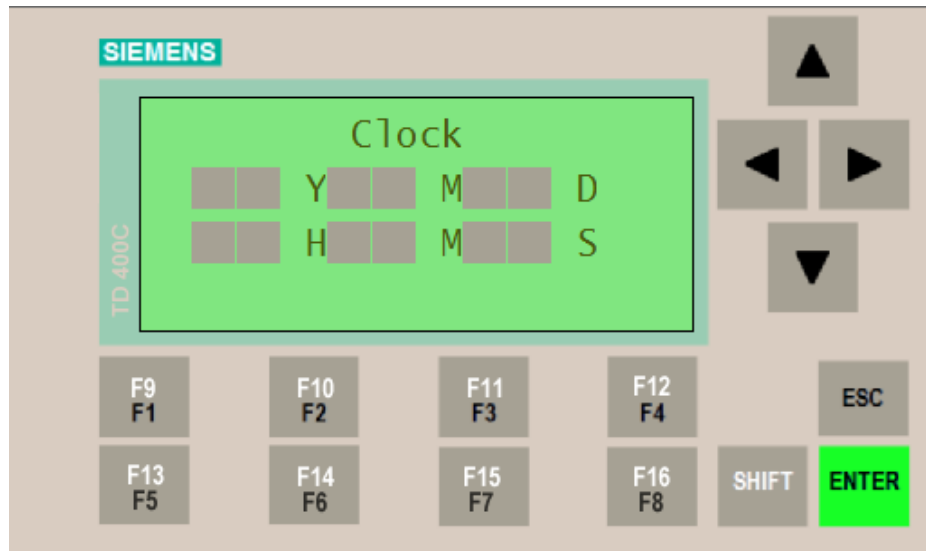
The display panel has three sets of screen, the first is operation screen, the second is setting screen, and the third is alarm screen. Operator can press the button ESC to jump out of the current screen, press button page up , page down(▲▼)and ENTER to choose and set screen. When power supply is connected, display panel show operation screen 1, as following:



Screen 1

Screen 1 is the manufacturer's contact information

Press button page down, screen 2 is shown:



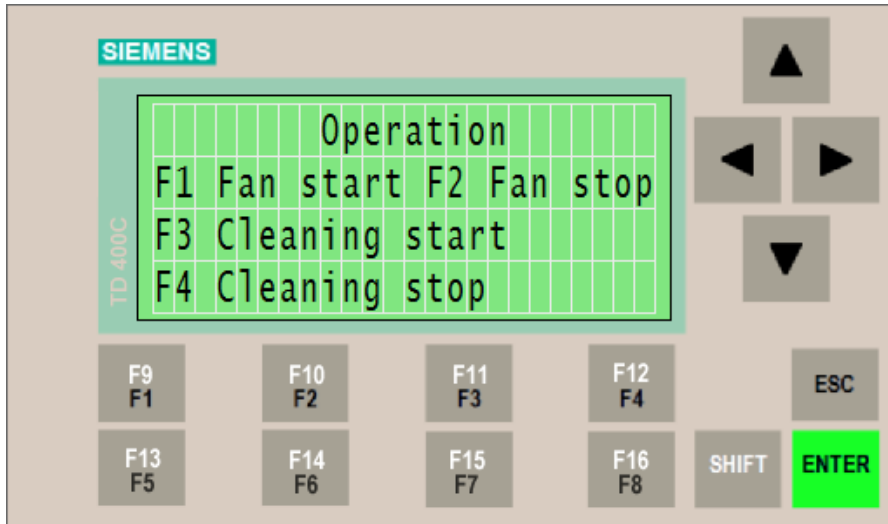
Screen 2

Screen 2 is time screen which shows PLC system time.

Time setting method: press button ESC to jump out of screen 1 → press button ESC to jump into operator's menu → press button ENTER to enter into operator's menu → press button "page down" and choose "date and time setting" → press button ENTER to enter "date and time setting" → press button ENTER, PAGE UP and PAGE DOWN to choose and set time → press button ENTER to exit time setting.

Note: the purifier's system time has been set before leaving factory, non-professionals don't change it.

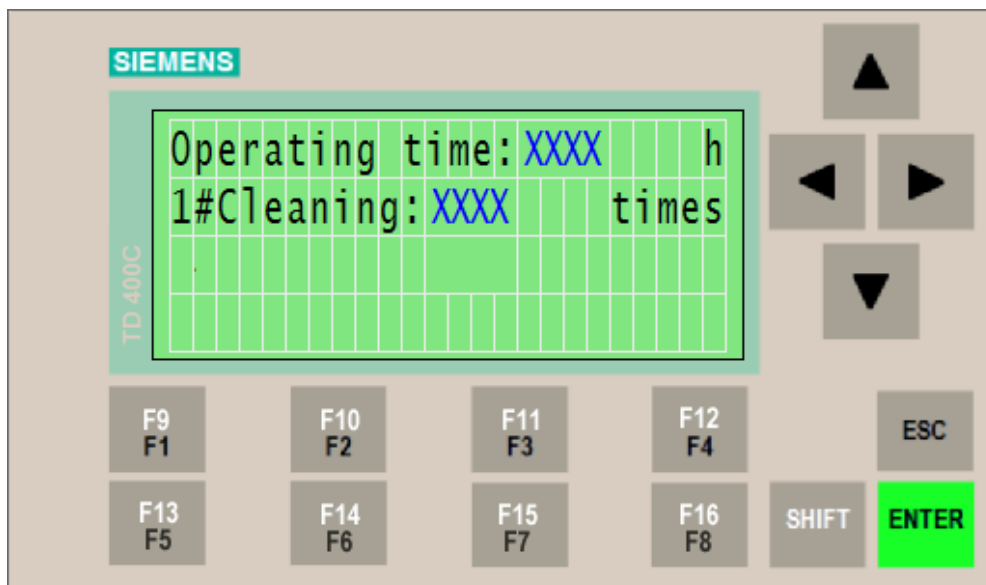
Press button page down, screen 3 is shown:



Screen 3

Screen 3 shows buttons' function, press F1 to start fan, press F2 to stop fan, press F3 to start blow cleaning, the system will implement rotation reverse blow cleaning, blow time and interval time can be set according to actual requirement, press F4 to stop blow cleaning.

Press button page down, screen 4 is shown:



Screen 4

Screen 4 monitor and record the previous blow cleaning's times, it is useful for operator to monitor and maintain the extractor. Meanwhile, the monitor and record

the purifier's total running hours after it left the manufacturer's factory and blow cleaning times, it's useful for the operator to monitor and maintain the purifier.

Press button ESC to jump out of the current screen, press button page up, page down (▲▼) and ENTER to choose and set screen. Setting screen:

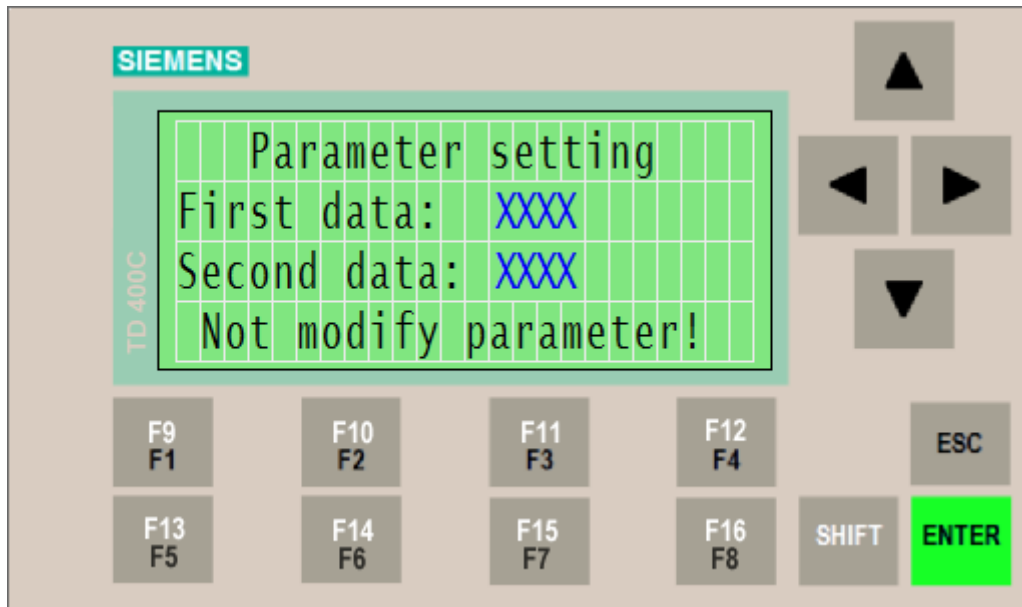


Screen 1

In setting screen 1, operator can set up stop-cleaning times and blow cleaning cycle interval time according to compressed air supply and the amount of fume of workplace.

Suggestion: blow cleaning time is 0.5S-1.0S; cycle interval time is 25S-40S.

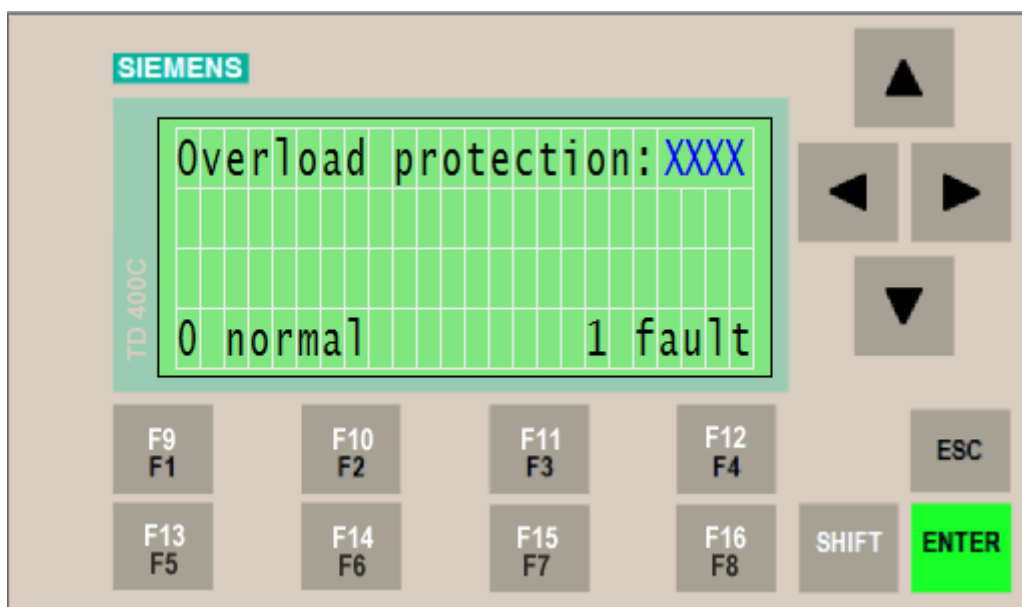
Press button page down, screen 2 is shown:|

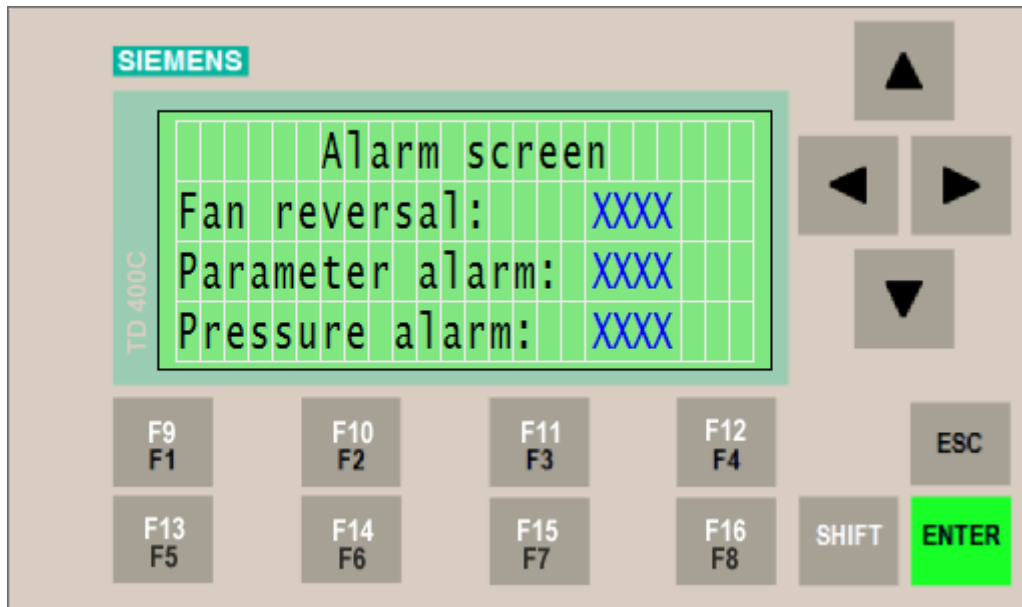


Screen 2

Data in screen 2 is the system's parameters, to ensure the purifier working properly, please don't change it.

When parameters set, press button ESC to jump out of current screen, press button page up, page down (▲▼) and ENTER to choose and set screen. Alarm screen:





Screen 1

Alarm screen is for monitoring the purifier's fault. When any of the three kinds of fault included in the screen occurs, the system will alarm, and the indication light will turn from green to red to show alarm. When operator finds alarm, please turn to alarm screen to check alarm display. Under normal condition, every alarm's corresponding figure shows "0", when it shows "1", it means this alarm aspect has fault. Solving method is as following:

- ①: When fan reverse turning shows "1", please change the purifier power supply's phase sequence.
- ②: When pressure difference shows "1", it means possibly compressed air supply hasn't been connected to the purifier, or filter cartridge is clogged, or filter cartridge aged. Please open the side door to clean the filter cartridge or replace the filter cartridge.
- ③: When circuit-breaking protection shows "1", it means the motor circuit breaker is functioning , cutting off motor's power supply, possibly the motor's working current is higher than rated working current. Please manually connect the circuit breaker.

5. Safety

- (1) Please carefully read the instruction manual before starting the extractor. Check whether power supply and compressed air supply are properly connected, dust-collector properly fixed.
- (2) This extractor use 3×415V/50Hz power supply, if the voltage fluctuation exceed $\pm 10\%$, the extractor possibly can't be started, and you should stop starting it.
- (3) Use independent power socket and ensure a reliable grounding, don't remove the grounding pin. Please unplug the power plug when you won't use the extractor for a long time.
- (4) Don't damage the extractor's power line. Don't unplug the power plug by pulling the power line.
- (5) Avoid burning objects (such as: burning paper, burning cotton or burning cigarette butt, etc) to be sucked into the extractor in order to avoid burn out filter cartridge.
- (6) The extractor's repair should be done by professionals.
- (7) Fume hose should avoid being punctured by sharp objects.
- (8) The extractor can't be used for purifying fume contains oil, water, flammable or corrosive fume, in order to avoid filter cartridge's clogging, damage, or fire accident.
- (9) Suction hood's distance to welding spot should be 0.3m-0.5m, exceeding the distance suction effect will be affected.
- (10) Regularly maintain and repair the extractor to ensure it's normal functioning, make sure the dust-collector isn't too full with dust, otherwise the filter's filtration ability will be hindered and dust-dumping will be difficult.

6. Service and Repair

- (1) Dump dust from the dust-collector every day. (note: turn off the extractor before dust dumping).
- (2) Regularly (every 6 months) check electronic components and connecting power line, ensuring the extractor to be in proper working condition.
- (3) Often check the dust cleaning system to see whether there's air leakage, ensuring the air pressure to be 0.4-0.6Mpa.
- (4) Regularly (every 6 months) check pressure difference switch (rectify pressure difference 1500Pa).
- (5) Regularly check side door to see whether it's tightly sealed, preventing air leakage affecting suction effect.
- (6) Discharge the coalesced matters from air storage tank every month. (Open air valve at the rear of the extractor, totally discharge coalesced matters from the tank, when there's only air jetted out, and close the valve).

7. Fault Finding

Fault	Reason of the fault	Solving method
The fan can't be started	<ol style="list-style-type: none"> 1. Power supply lack of phase. 2. The motor circuit-breaker trip when the electric current reaches current setting. 3. Temperature switch break down. 4. No power supply to PLC or switch is on stop position, resulting in no signal output from PLC. 5. Filter cartridge has high 	<ol style="list-style-type: none"> 1) Check power supply. 2) Please connect circuit – breaker. 3) Please replace temperature switch 4) Check PLC power supply and the switch's position. 5) Start it when temperature cools down to be lower than

	temperature, the system implement protection automatically.	the protection temperature.
the motor turn reversely	<p>6. Power supply's phase sequence is different from motor correct turning's phase sequence, and now the power supply indicator is red.</p> <p>7. Terminal block of power supply indicator or phase sequence relay is falsified.</p>	<p>6) Please exchange any two phase sequence of the power supply.</p> <p>7) Please contact the manufacturer.</p>
Fan's noise is loud	<p>8. Fan turn reversely.</p> <p>9. Connecting pin or nut come loose.</p> <p>10. Dust accumulated on the fan.</p>	<p>8) Please exchange any two phase sequence of the power supply.</p> <p>9) Check the fan's fixing.</p> <p>10) Clean the fan.</p>
No blow cleaning	<p>11. No compressed air supply or the air pressure is insufficient.</p> <p>12. No power supply to PLC, resulting in no signal output.</p> <p>13. PLC switch is in stop position, resulting in no signal output.</p> <p>14. Electronic component damaged.</p>	<p>11) Check compressed air supply.</p> <p>12) Check PLC power supply.</p> <p>13) Turn PLC switches to operation position.</p> <p>14) Please contact the manufacturer.</p>
Fume suction lessening	<p>15. There's leakage in the extractor.</p> <p>16. Filter cartridge clogged.</p>	<p>15) Check air tightness of the extractor.</p> <p>16) Clean or replace filter</p>

	17. Suction pipe has breakage.	cartridge. 17) Replace suction pipe.
suction arm can't be positioned at will	18. Joint spring receive unbalanced force.	18) Please contact the manufacturer.
filter cartridge clogged	19. Blow cleaning system break down. 20. Solenoid valve break down. 21. No compressed air supply or compressed air supply doesn't meet requirement. 22. Dust collector is full.	19) Please contact the manufacturer. 20) Please contact the manufacturer. 21) Please check compressed air supply. 22) Please empty the dust collector.
low filtration effect	23. Filter cartridge broken or aged. 24. Filter cartridge's sealing strip doesn't seal.	23) Replace the filter cartridge. 24) Please check filter cartridge's air tightness.

8. Parts List

No.	Name	Model	Quantity	Remarks
1	motor	QAL-100L	1	1.5 kW
2	fan	KSZ-1.5D	1	Shanghai Kaisen

3	displayer	TD400	1	SIEMENS
4	PLC	CPU221/1P	1	SIEMENS
5	transformer	JBK5-100VA	1	shanghai
6	Solenoid valve	ZCJDN25	1	JVL
7	Pressure difference switch	1500pa	1	U.S Dwyer
8	Motor circuit-breaker	GV2-ME08C	1	Schneider
9	contactor	LC1-D09M7C	1	Schneider
10	phase sequence relay	RM4-TG20	1	Schneider
11	Circuit breaker	C65N2PC6A	1	Schneider
12	Hose(for 3M suction arm)	KSZ-1.5S-150-3m	1	Shanghai Kaisen
13	Filter cartridge	QLX167/KS08	1	Shanghai Kaisen
14	Blowing nozzle	KSZ-1.5S -PZ	1	Shanghai Kaisen
15	suction hood	KSZ-1.5S -XQZ	1	Shanghai Kaisen
16	Joint(for 3M suction arm)	KSZ-1.5S -GJ-3m	1	Shanghai Kaisen

9. Installation



- a) The joint has been reversely fixed before leaving the factory, please be careful when you untie the tying tape, preventing joint spring causing reverse swing and hurt you.
- b) Suction hood, hose are packed in another carton box. For sake of safety, please put hose over the joint first, then fix together on the purifier.
- c) Rubber band, clamps are in the package box. If any problem arises in fixing and using, please contact the manufacturer, we will provide technique service free of charge.

10. Contact information

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