Control Unit
ECO-NET 128

Use and Maintenance Instructions

Version: 1.03
Issue: October 2021

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Description

The ECO-NET 128 control unit (Master Economiser) is an electronic device for controlling pneumatic cleaning of the Industrial Dust Collector Systems. Thanks to the digital control of the pressure differential, carried out by the internal transducer, the Eco-Net 128 accurately analyses the status of clogging of the filters and automatically manages cleaning only when necessary; thus optimising the entire dust removal process.

The construction technology of the Eco-net 128 allows up to 127 valve actuators to be connected in cascade mode, via 3-wire Bus communication.

The control unit has a powerful micro-controller which, through innovative software, makes the instrument easy to use even by inexperienced users.

The Eco-net 128 has a graphic LCD with menu in 5 languages, through which the user can control the entire cleaning process and make settings by accessing the various menus via a series of buttons positioned on the front panel of the control unit.

The following are available on the control unit connection terminal board:

- 2 digital inputs for remote control (Remote control, fan status);
- 2 alarm relays (actuators anomaly, Δp pressure exceeded);
- 1 current-Loop 4÷20mA output for pressure Δp re-transmission;
- 1 output for valve actuators Bus connection;
- 1 current-Loop 4÷20mA input (optional);

Other control unit features are:

- Backlit display with menu in five languages;
- Operating mode can be selected from "manual", "automatic", "proportional" and "special";
- Pressure unit of measurement can be selected from KPa, mBar, mmH2O, Inch WC;
- Extended power supply voltage range (100÷240Vac 50-60Hz) (optional: 24Vac/24Vdc);
- Fan off washing function (Post pul.) using the fan Δp threshold in setting automatic/proportional mode and by means of external contact in manual/special mode with programmable number of cycles;
- Hour Meter and Pulse Counter for maintenance;
- Minimum Δp alarm (broken hose) with on/off selection.
- Maximum Δp alarm (clogged filter);
- Valve actuator not working alarm;
- Filtering elements maintenance alarm, with on/off selection.
- Cleaning cycle start from external contact.
- Compressed air presence consent input.
- Precoating Function;
- Manual activation of individual valve actuator for system test function:

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

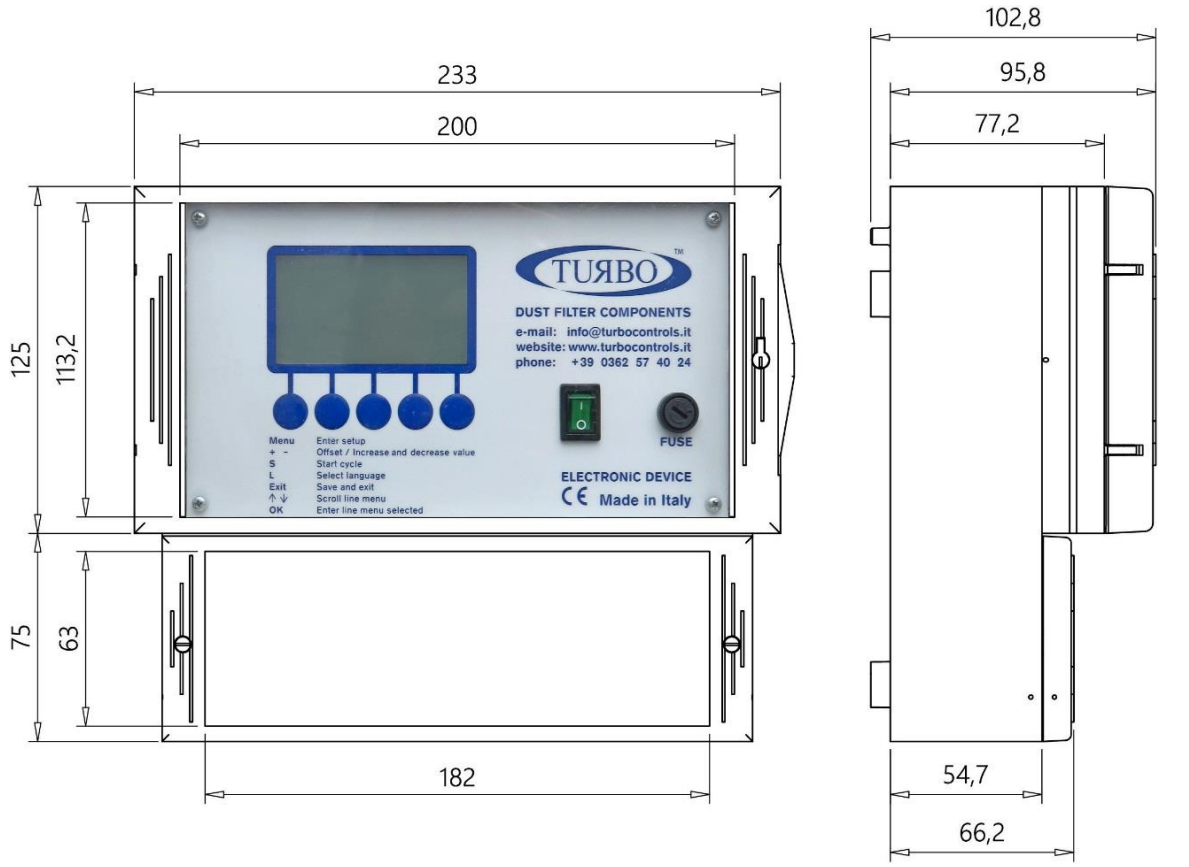
General features

Power supply voltage	100÷240Vac 50-60 Hz Optional: 24Vac/Vdc ± 10 %
Electric consumption (with Ton max=10sec)	25W at max load (35W per 24Vac/Vdc IN)
Protection fuse	1A (100÷240Vac IN) 3A (24Vac/Vdc IN)
Operating temperature	-10 °C - 55 °C
Storage Temperature	-20 °C - 60 °C
Environmental humidity	0 ÷ 95% Rel. (Non Condensing)
Pressure Transducer	0 ÷ 10Kpa (max 40Kpa) (*)
Maximum pressure applicable	50KPa – 0.5 bar High pressures damage the device 
Pulse Time (valve opening)	50msec ÷ 5sec
Pause time (interval between valves opening)	1sec ÷ 7200sec
Proportional output 4 ÷ 20 mA	1x 4÷20mA current Loop (self-powered)
Alarm Relays	2 N.C. (voltage-free contact) 24Vac/dc 5Amp (**)
Display	Monochrome graphic LCD B/N 128 x 64 Pixel.
Casing	ABS base Polycarbonate Lid
Protection rating from water and dust	IP65 (DIN EN 60529)
Shock resistance	IK08/07 (8 Joule) (En62262)
Flammability	(UL746C 5): UL 746C 5V
Resistance to UV rays	UL508
Seals	EPDM and polyurethane
Colour	RAL 7035
Overall weight	1.1 Kg

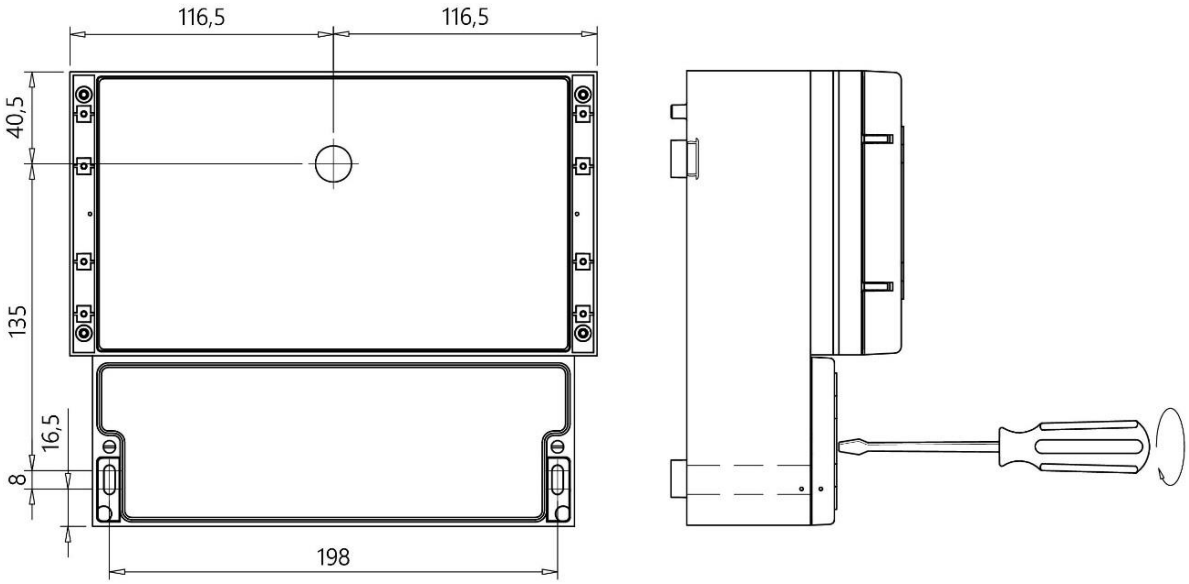
Note(*): *Higher pressures may damage the transducer Do not connect clogging measuring tubes to the compressed air circuit.*

Note(**): *For 230Vac 5Amp relay contacts, request the optional "Piggy-back 2 RELAY" board*

Dimensions and measurements



Mechanical fixing



Warning Symbols Used in the Manual

The indications regarding safety are highlighted using the following symbols:

	Attention - Danger	Warning - Generic
	Risk – Hazard	Electric Current
	Dispose of according to the WEEE Waste Electrical and Electronic Equipment Directive	

Installation regulations and warnings

- Protect the equipment from direct exposure to sunlight.

- Position the equipment away from sources of heat or electromagnetic fields generates by equipment being used.
- Fix the equipment to the wall at a height of at least 60 cm from the ground; it must be clearly visible and easy to reach.
- Connect the equipment to supply lines different to those used for motor drives or other large power devices that could generate network disturbances or instability.
- The appliance electric power supply must be protected by a 230Vac~ 30 mA differential circuit breaker and a 230Vac~ 10 A bi-polar magnet circuit breaker, positioned in a place that is easy to reach.

- Before intervening on the appliance to perform any operation, deactivate the magnet circuit breaker.
- For electrical operations, always remove the voltage and wait 30 seconds for the internal capacitors to discharge before opening the container.

  When finished, close the device before turning on power.
- Make sure you are in a safe atmosphere before using the equipment for any type of operation.
- Use flame-proof cables with minimum section of 0.75mm² certified and compliant with regulations to connect the power supply voltage.

IEC60227
IEC60245

- Use flame retardant cables with a minimum section of 0.5 mm² for all input control signals and valve actuators.
- Use flame retardant cables with a minimum section of 0.75 mm² for signal relay contacts.
- The protective earth cable must be yellow/green.

- The protective earth cable must be connected first.
- The yellow/green cable must only be used for earthing.

Continues....

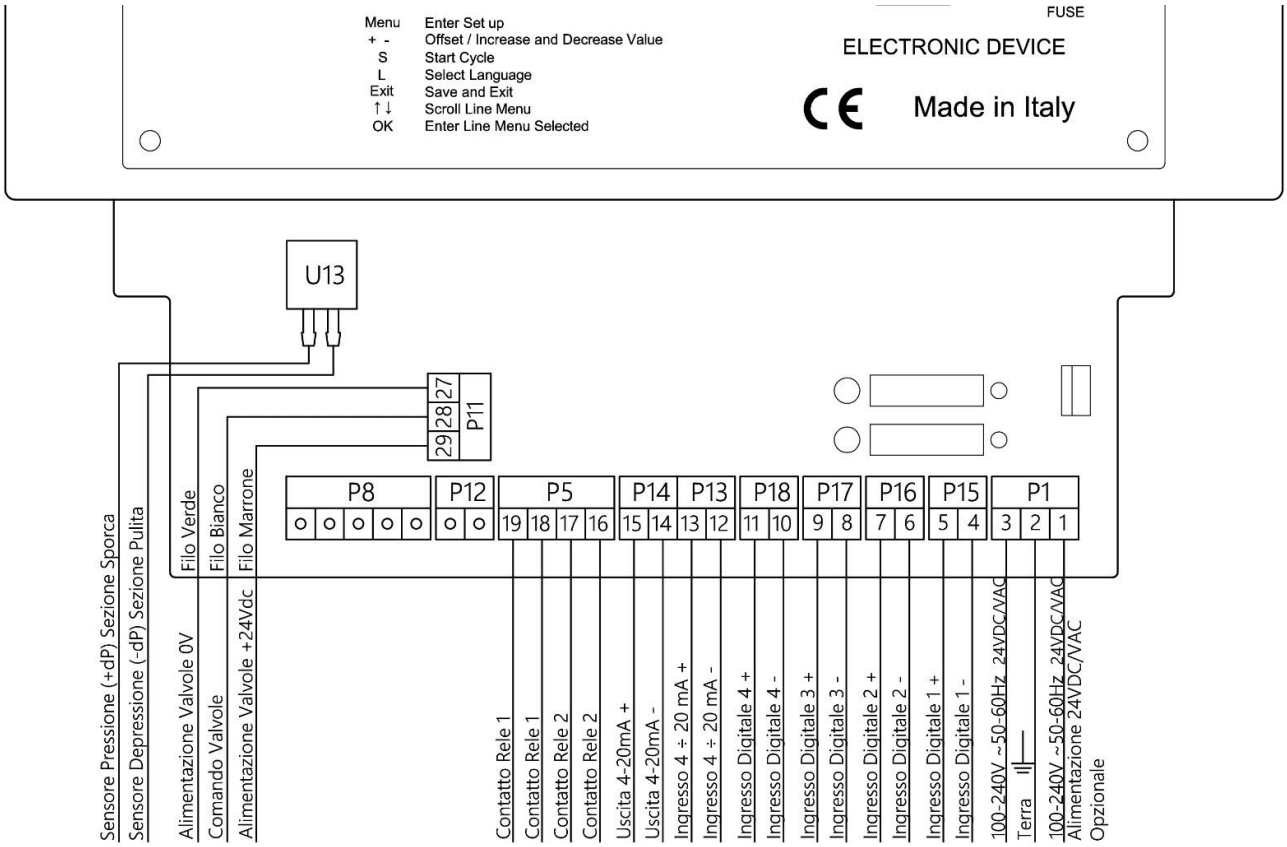
- The cable glands are selected in relation to the diameter of the cable use.
- Sealing of the cable gland is guaranteed by the compression of the rubber gasket, which tightens on the external diameter of the cable.
- The dimensions of the cable and the cable gland must guarantee that pull on the power supply cable does not affect the terminals.
- The terminal board must not be a mechanical anchorage point of the wires.
- The PG9 cable gland supplied on request, has a minimum cable diameter of 4mm and maximum of 8mm, with locking nut of 19mm.
- Any use not foreseen in this user manual and improper use of the device may cause damage to the same and possibly to the connected equipment.
- Misuse or tampering with equipment could cause damage to people.
- The container is waterproof when the door is closed.
- If rigid or flexible ducts are used for wiring, make sure they cannot be filled with water or other liquids.
- Do not make holes on the container that are unprotected or protected by accessories with a degree of protection lower than that of the control unit.
- If water is found in the container, immediately stop supplying voltage.
- Whenever the control unit is used in ways not specified by the manufacturer, the protection envisioned by the appliance may be compromised.
- The control unit does not release potentially toxic or hazardous substances for health and the environment.
- No part with dangerous voltage is normally accessible.

IMPORTANT

Do not use the control unit before reading and understanding this manual.

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

General connection diagram



Connections key

Pos.	Description	Notes
P1 (1-2-3)	Main power supply connector	
P15 (4-5)	"Cleaning Fan Off" input contact (Post pul.)	Potential-free contact (*)
P16 (6-7)	"Remote enabling" input contact	Potential-free contact (*)
P17 (8-9)	Filter fan hour counter contact	Potential-free contact (*)
P18 (10-11)	Digital input contact (reserved for future expansions)	Potential-free contact (*)
P13 (12-13)	Current-Loop 4÷20mA analogue input	Optional
P14 (14-15)	Current-Loop 4÷20mA analogue output	max. load = 300 Ohm
P5 (16-17-18-19)	Alarm relay contacts (16-17, 18-19)	Normal. Closed (**)
P8	Input/Output connector (reserved for future expansions)	
P12	Communication connector (reserved for future expansions)	
P11 (27-28-29)	Connector for solenoids actuators Bus	3 dedicated wires
U13	Pressure Transducer	dP+ =dirty side dP- =clean side

(*) voltage-free contact
(**) IMPORTANT: to be used only for SELV voltages (max 24Vac/dc) guaranteed by a safety isolation transformer.

Layout of connection to the valve actuators Bus

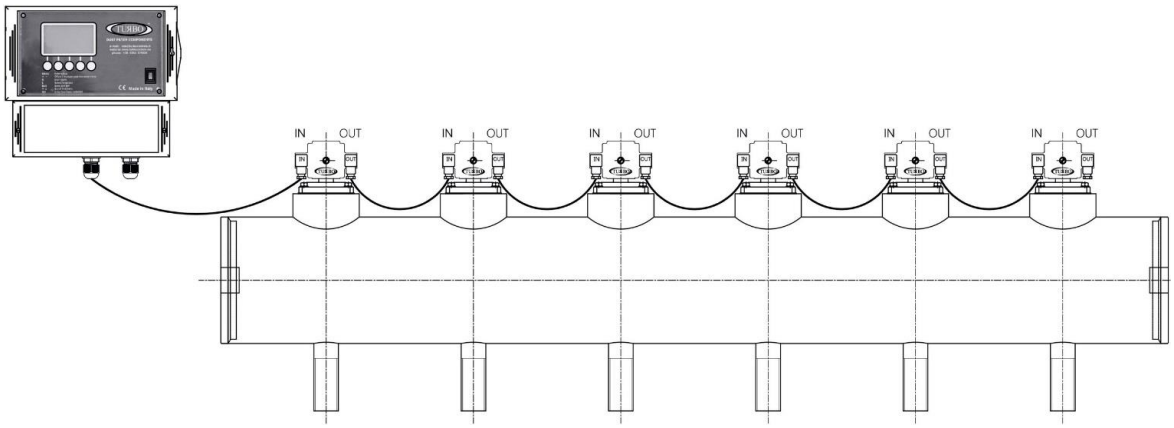
Connect the valves actuators Bus to connector P11, respecting the following positions:

Pos. P11	Description	Notes
27	Green wire	0 V
28	White wire	Bus digital signal
29	Brown wire	+24Vdc

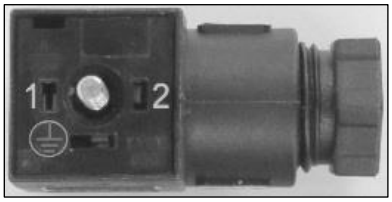
The cable used for wiring must be of the following type: **H05VV-F 0.75mm² – 19AWG.**

The cable connected to the P11 connector of the Eco-Net 128 control unit, must be introduced into the "IN" port of the first valve actuator present on the chain, using a PG7 type connector, complete with seals supplied, to guarantee the IP sealing of the circuit.
Successively, jumpered wiring must be realised from the "OUT" port of the first actuator, for connection to the "IN" port of the next valve actuator, using the same measures illustrated above.
Repeat the same operation up to the last valve actuator of the bus. A PG7 closing connector must be mounted on the "OUT" port of the last actuator, without cables but with the rubber cap supplied.

Below find a typical actuators Bus connection layout:



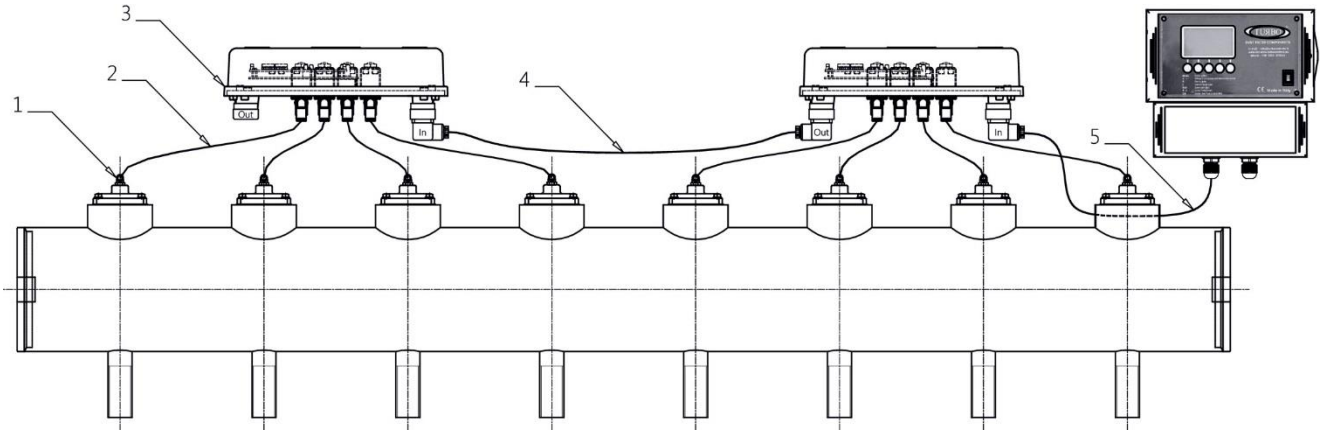
To realise the connection cable for the "IN" and "OUT" ports of the valve actuators, the indications must be followed:



Pos.	Description	Notes
1	Brown wire	+24 V
2	White wire	Digital signal
3(GND)	Green wire	0 V

Connection layout to the ERCP pilot enclosure boxes

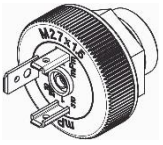
Connect the 3-wire cable coming from the IN connector of the first pilot enclosure box for pneumatic drive (ERCP) present in the system, to the P11 connector of the Econet control unit, as shown in the following layout:



Key:

1	Remote pneumatic valve
2	Connection pipe between remote pilot and the valve
3	Enclosure with built-in pilots for driving valves
4	Connection cabling between the ERCP pilot enclosure boxes
5	Connection cabling between the control unit and the pilots enclosure box

Several pilots enclosure boxes are present in the system; connect them in sequence in a way that the OUT connector of an ERCP pilots enclosure box is connected to the IN connector of the next ERCP pilots enclosure box.



Use a connection cable made with a DIN 43650 connector, to fix onto a cylindrical base, making sure that the relative IP sealing gaskets are mounted.

Complete installation by hermetically closing the OUT connector of the last ERCP pilots enclosure box present in the system.

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Display and keyboard

There are 5 round keys on the front panel, used to access the equipment functions.

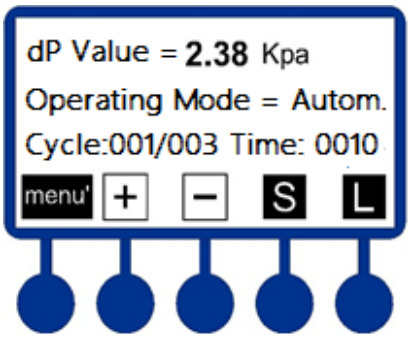
When turned on, the display shows the name of the control unit and the firmware/hardware version on the first page.

The next page shows the current operating conditions. The first line shows the ΔP value measured by the internal transducer.

The second displays the current operating mode which, in the case of an anomaly, alternates with the contextual signal.

The third line displays the progression of the cycle in progress and the decrease of the pause time.

The last line indicates the function associated to each button.



By pressing the + − buttons, the brightness of the display on the main screen can be adjusted. In the other screens, these are used to modify a value set or to consult the alarms.

By pressing the "L" button, access is given to the display language selection screen; select from the five available: Italian, English, French, German and Spanish.

By pressing the "S" button, the cycle in progress stops. It can be resumed by pressing the button again. It is active only in "manual" and manual-special" operating mode.

By pressing the "MENU" button, access is given to the selection screen, from where it is possible to use the "↓" and "↑" buttons to scroll the items available.

Once the item desired is highlighted, press "OK" to access the corresponding parameters.

In the event of an alarm, the "MENU" button can be used to RESET (rearm) the event.

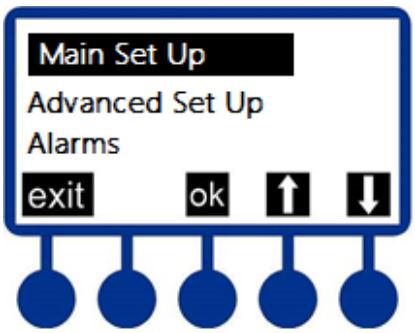
TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Main Menu

The main menu can be accessed by pressing the "MENU" button on the main screen.

Using the "↓" and "↑" buttons, it is possible to select the category desired and, by confirming with "OK", the individual configuration parameters are accessed.

Once the individual categories have been entered, use the "↓" and "↑" buttons to select the parameter, and the "+" and "-" buttons to modify the value.



The categories and parameters are organised as follows:

Basic Configuration

	Description		Unit of measurement	Factory settings	Range
1.1	**Operating Mode** *Set the desired operating mode from Automatic, Manual, Proportional and Special*			Autom.	Manual Special
1.2	**Pulse time (ms)** *The duration of opening (shot) of the valve is set*		msec	200	50 5000
1.3	**Cycle time (sec)** *The time interval between the opening of one valve and the next is set*		sec	20	1 7200
1.4	**No. valves** *The number of the valves connected to the plant to control is set*			3	0 127
1.5	**Unit Measure dP** *The unit of measurement of the pressure ΔP reading is set from KPa, mBar, mm H2O and Inch WC*			KPa	KPa Inch WC
1.6	**dP start cleaning** *The pressure value is set for the start of the washing cycle (only if in Automatic or Proportional Mode)*		KPa/1000	800	0 10000
1.7	**dP stop cleaning** *The pressure value is set for the end of the washing cycle (only if in Automatic Mode)*		KPa/1000	400	0 10000

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Advanced Set Up

	Description		Unit of measurement	Factory settings	Range
2.1	**dP Fan On/Off** *The threshold value for fan on or off recognition is set (used for Post-cleaning function)*		KPa/1000	100	0 10000
2.2	**Cleaning fan off** *The number of complete washes with fan off is set*			2	0 100
2.3	**Pulse time (ms)** *The duration of opening (shot) of the valve, with fan off, is set*		msec	200	50 5000
2.4	**Cycle time (sec)** *The time interval between the opening of one valve and the next, with the fan off, is set*		sec	10	1 7200
2.5	**Precoating** *Enables the Precoating function.*			Disable	Disable Enable
2.6	**dP Precoating** *the pressure value to maintain the Precoating function enabled is set. When the value is exceeded, the control unit returns to the original operating mode.*		KPa/1000	1500	0 10000
2.7	**Cycles Man. Spec.** *The number of complete cycles to be carried out in Special mode is set*			2	0 50000
2.8	**Pause Man. Spec.** *The pause time between the cycles in Special mode is set*		Sec	20	0 43200

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Alarms

	Description		Unit of measurement	Factory settings	Range
3.1	**dP Dirty filter** *Set the pressure ΔP value to generate the clogged filter alarm*		KPa/1000	3000	0 10000
3.2	**Enabling Min. dP** *The broken hose alarm function is enabled*			Disable	Enable Disable
3.3	**Low Alarm Thres dP** *Set the pressure ΔP value to generate the minimum pressure alarm*		KPa/1000	200	0 10000
3.4	**Hourmeter Fan** *The extraction functioning hour count function is set through the input on connector P17*			Disable	Enable Disable
3.5	**Replace Filters (h)** *The number of hours desired to signal the filtering elements replacement intervention is set. Signalling is subject to the activation of the Hourmeter Fan function.*		Hours	1000	0 10000

Calibration / Test

	Description		Unit of measurement	Factory settings	Range
4.1	**No. valves (+/- =ON)** *The Bus valves are activated manually for system test*			1	1 127
4.2	**Zero dP** *The Zero ΔP pressure calibration is performed, simultaneously pressing the "+" and "-" buttons.*		KPa	0	0 100
4.3	**4 mA Output** *The 4mA output value, which corresponds to Zero ΔP pressure, is set*			650	0 3600
4.4	**20 mA Output** *The 20mA output value, which corresponds to full scale ΔP pressure, is set*			3290	0 3600

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Counters

	Description		Unit of measurement	Factory settings	Range
5.1	**Hours Power** *The control unit switch-on hour meter is displayed.*		HH	0	0 9999999
5.2	**Pulse count** *The Counter of the valve activation connected to the Bus is displayed*			0	0 9999999
5.3	**Fan Hours** *The filter fan switch-on hour meter is displayed. The counter is subject to the activation of the Hourmeter Fan function.*		HH	0	0 9999999

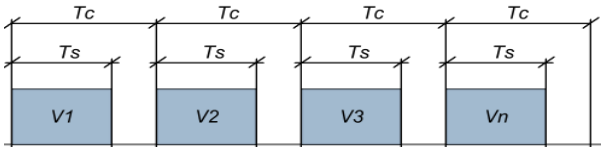
TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Operating mode

The operating modes of the Eco-Net 128 control unit are shown below. They can be activated by setting the relative parameter of the "Main Set Up" menu.

Manual mode

In this mode, the Eco-Net 128 control unit operates as a programmable cyclic sequencer. The Bus valves will be activated sequentially, at programmed intervals of time.

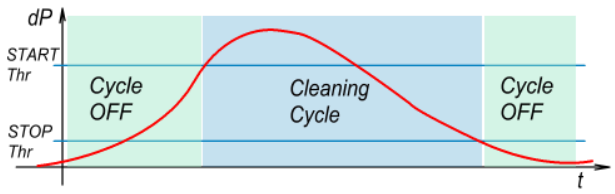


The activation times of the valves can be programmed using the same menu; modifying the "Pulse time" (Ts), "Cycle time" (Tc) and setting the overall number of valves (Vx) that make up the system.

Automatic mode

In this mode, the Eco-Net 128 control unit operates autonomously, performing the cleaning cycle only when necessary. The cycle starts when the pressure threshold set in the "dP Start Cleaning" parameter is exceeded.

The valves are activated in sequential mode, following the times indicated in manual mode.

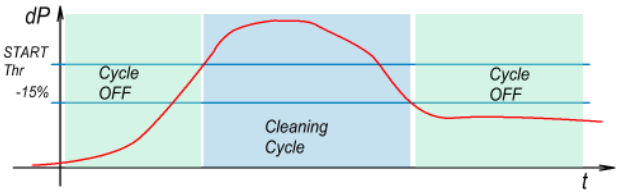


If the pressure differential drops below the "dP Stop Cleaning" value set, the cleaning cycle will be suspended and will start again when the "dP Start Cleaning" value is exceeded.

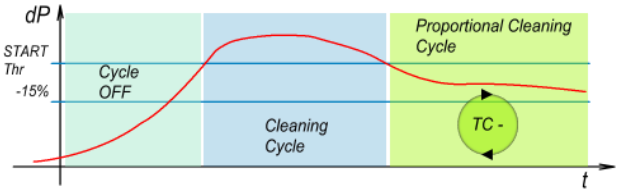
TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Proportional mode

In this mode, the Eco-Net 128 control unit functions autonomously, starting the cleaning cycle when the pressure threshold set in the "dP Start Cleaning" parameter has been exceeded and sequentially activating the valves with programmed pulse time and cycle time.



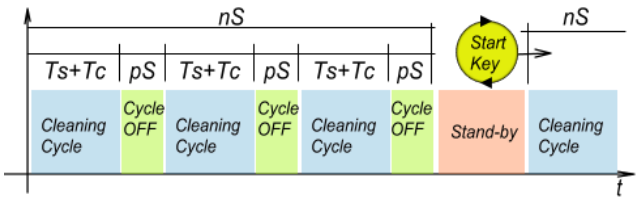
If, at the end of valve activation, the pressure differential drops by over 15% with respect to the "dP Start Cleaning" value, the cycle is suspended to resume when this value is exceeded again.



If the pressure differential does not drop by over 15% at the end of activation, the control unit will proportionally reduce the "Cycle time" (Tc), until a minimum time equal to 10 sec is reached. This limit has been set to prevent criticality in the compressed air supply system, connected to the cleaning filter.

Special manual mode

In this mode, the Eco-Net 128 control unit activates the valves with the times indicated in manual mode (Ts, Tc), for the number of cycles programmed in the "Cycles Spec. Man." (nS) parameter, introducing a pause between one cycle and another with a value corresponding to the "Pause. Man. Spec."(pS) parameter. These parameters are found in the "Advanced Set Up" menu.



When the programmed special manual cycles have ended, the control unit goes into stand-by until the operator re-starts the cleaning cycle by pressing the "S" (Start/Stop) button on the front panel

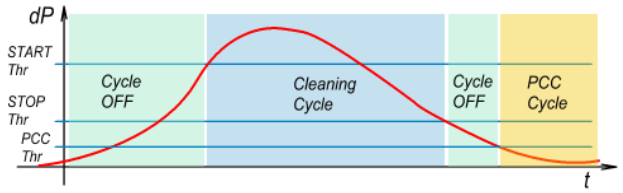
This mode is especially suited for small filters or filters where the pressure differential has low values or the inverter keeps pressure constant and it is hard to work with automatic and proportional modes.

Functionality

Cleaning with fan off (Post-Cleaning)

This function allows a cleaning cycle to be run with the fan off. Its activation is automatic in "Automatic" and "Proportional" modes, when the pressure differential drops over the value set in the Fan On/Off dP" parameter of the Advanced Set Up menu. It is possible to repeat the function by configuring the "Fan Off Cleaning" parameter.

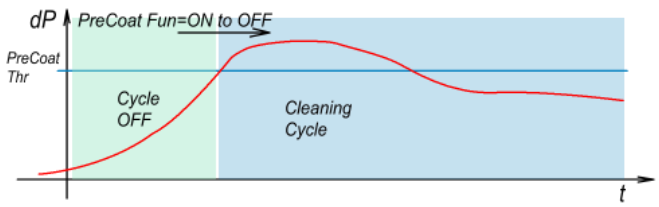
Dedicated parameters are available to carry out the Post-Cleaning function; "Pulse time" and "Cycle time" in the Advanced Set Up menu.



The function can also be carried out in “Manual” and “Special Manual” operating modes, connecting the contact of the fan status to terminals 4-5 of connector P15.

Precoating

The function allows precoating to be performed. This is a specific treatment of the filtering elements, which is carried out with a powder suitable for the purpose, known as "precoating powder". During this phase, the cleaning cycle is suspended until the “dP precoating” threshold has been reached. This can be set by the user in the Advanced Set Up menu, as also the activation parameter.



Once the precoating dP threshold has been exceeded, the control unit will begin the cleaning cycle, automatically disabling the precoating function.

Setting number of outputs

It is possible to select the number of outputs (solenoid valves) with which the control unit will carry out the cleaning cycle, respecting the sequential order, from the first to the last solenoid valve, set in the basic configuration parameter.

Enabling cleaning from remote control

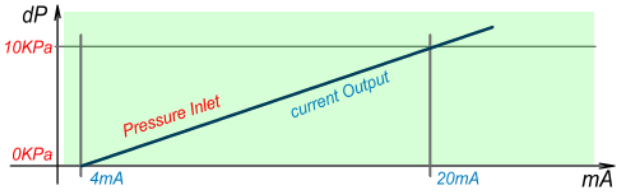
The control unit has an input contact for remote enabling which, when open, cuts off all control unit functions. A pressure switch can be connected to the remote enabling input of a PLC or an intelligent control system.

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

The remote enabling input is found on terminals 6-7 (terminal P16) of the control unit. A voltage-free contact (switch, relay contact,...) must be connected to this input which, when closed, enables the control unit to function. Instead, with the contact open, the control unit will remain powered in stand-by to receive consent, without performing any operation.

Output 4-20mA

Current-Loop re-transmission of the pressure dP value, read by the control unit internal transducer, is available at terminals 14-15 (terminal P14). This function is useful for sending information of the pressure reading to a remote device (e.g. in a control room).



By accessing the parameters of the Calibration/Test menu, the start and full scale value of the 4-20mA output can be calibrated.

Input 4-20mA

An input in current-Loop is available (only in versions equipped) at terminals 12-13(terminal P12), for connection to a triboelectric probe, which allows to measure the concentration of dust particles in the environment.

Alarms

Two relays with voltage-free contact are available on the control unit, which will be activated on the occurrence of an alarm, switching-over their contact from the rest condition to the opposite condition. The relay contact is normally closed in the rest condition, in the absence of an associated alarm.

Relay	Terminals	Terminal	Function
RELAY 1	18-19	P5	dP minimum (if activated from the menu)
			dP dirty filter
			Replace Filters (if activated from the menu)
RELAY 2	16-17	P5	Solenoid valve anomaly

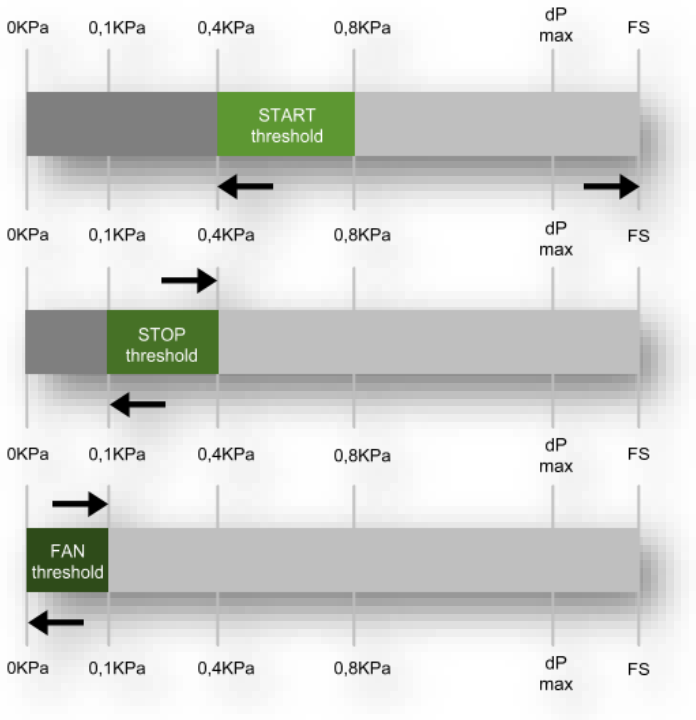
The alarm event will be signalled in a flashing manner also on the LCD. Using the "+" and "-" buttons, it will be possible to scroll the alarm events occurring and they can be silenced by pressing the "RESET" button.

The internal piezoelectric buzzer will signal the event in conjunction with an alarm.

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Setting the pressure thresholds dP

The control unit software has (*) a limitation function of the pressure threshold settings regarding the "dP Start", "dP Stop" and "dP Fan On/Off" values.



These values contribute to the execution of the functions relative to the automatic cleaning and post-cleaning cycles.

As highlighted in the table at the side, the "dP Start" threshold that can be set, will be a value between the dP Stop" threshold and the full scale value (FS).

The "dP Stop" threshold that can be set, will be a value between the "dP Fan On/Off" threshold and that of "dP Start".

The "dP Fan On/Off" threshold that can be set, will be a value between 0KPa and the "dP Stop" threshold.

(*) from the SW 7.5 version

Setting the pressure unit of measurement

Through the menu item "Unit Measure dP" of the *Main Set Up* menu, the user can set the pressure unit of measurement to display among those available on the control unit:

Unit of measurement	KPa (**)	millibar	Inch WC	mm H2O
Conversion of the pressure	1	10	101.97	4.014

(**) *default setting*

Warning: The selection of a new unit of measurement of the pressure dP DOES NOT lead to automatic modification of the dP thresholds set in the configuration menu. Therefore, the user must set ALL of the pressure dP thresholds again, so that they are consistent with the dP unit of measurement selected.

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

The following table gives the default values (KPa column) programmed in the control unit on leaving the factory and, by comparison, the same value with respect to the scales available:

Unit of measurement	KPa		millibar		Inch WC		mmH2O	
Scale Parameter(1)	value x1000		value x1		value x10		value x1	
Parameter	Value	Set	Value	Set	Value	Set	Value	Set
dP Start	0.8 KPa	00800	8 mBar	00008	3,2 inAq	00032	80 mmAq	00080
dP Stop	0.4 KPa	00400	4 mBar	00004	1,6 inAq	00016	40 mmAq	00040
dP Fan ON/OFF	0.1 KPa	00100	1 mBar	00001	0,4 inAq	00004	10 mmAq	00010
dP Precoat	1.5 KPa	01500	15 mBar	00015	6,0 inAq	00060	150 mmAq	00150
dP Max	3.0 KPa	03000	30 mBar	00030	12,0 inAq	00120	300 mmAq	00300
dP min	0.2 KPa	00200	2 mBar	00002	0,8 inAq	00008	20 mmAq	00020

Note (1): *Scale used to calculate the value with respect to the unit of measurement set*

The following criterion must be used to calculate the new value of the pressure thresholds:

Unit of measurement Selected (Um)	Coefficient K
KPa	x1000
millibar	x1
Inch WC	x10
mmH2O	x1

Calculation

New threshold value dP(Um) = [desired value (Um) x **K**]

where:
Um = Unit of measurement selected
K = Multiplier co-efficient

Example:
The pressure unit of measurement (Um) is to be modified from "KPa" to "Inch WC" and the "dP START" threshold is to be set at 3.2 Inch WC.

Operations to perform:
1) Enter the "Main Set Up" menu;
2) Set the unit of measurement dP(1.5) as "Inch WC";
3) Modify the "dP Start" threshold value (1.6) introducing the result of the following calculation:

"*dP Start*" threshold value (Inch WC) = 3.2 Inch WC x **K** = 3.2 Inch WC x **10** = 00032

4) Use the same calculation to modify all the other thresholds with respect to the new unit of measurement (Um).

Maintenance

Apart from the fuse, the Econet control unit does not have replaceable parts.

All other repairs must be carried out by the manufacturer.

To clean dust and dirt from the surfaces, rub delicately with cotton or another type of soft cloth soaked in a non-aggressive, non-abrasive detergent. Use those for glass surfaces, do not use solvents or aromatic compounds and do not clean using abrasive sponges.

Disposal

Do not disperse in the environment after use. Dispose of the product according to current regulations for the disposal of electronic equipment.

The control unit is an appliance used in a dust collector system and, therefore, it is part of a fixed installation.

Warranty

The warranty has duration of 2 years. The company will replace any electronic component deemed defective exclusively at our workshop, except in the presence of contrary agreements to be authorized by the company.

Exclusions From Warranty

The warranty is void in the case of:

- Signs of tampering and unauthorised repairs.
- Incorrect use of the equipment that does not comply with the technical data.
- Incorrect electrical connections.
- Failure to comply with the installation standards.
- Use beyond EC standards.
- Atmospheric events (lightning, electrostatic discharge), over voltages.
- Clogged air connections. Damaged tubes.

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092

Troubleshooting FAQ

Fault	Possible cause	Solution
The display does not turn on.	Blown fuse.	Check the protection fuse on the circuit board. Check that power supply voltage is present at terminals 1 and 2 and has the correct value.
The outputs do not activate.	No output voltage. Solenoid valve wiring cut-off.	Check the output voltage at terminals 27-29. Check that the solenoid valves have been mounted correctly (IN-OUT). Check that the wiring between the control unit and the solenoid valves, and between the same, is not cut-off or damaged.
Differential pressure metering is not correct.	Clogged air connections. Damaged tubes.	Check that differential pressure is 0.00 kPa when the tubes are disconnected. In this case, check that the connection pipes between the equipment and the filter are not obstructed or damaged.
The cleaning cycle is not performed.	The Start cycle threshold is set too high in automatic mode. The Remote input contact is open.	Check the Start cycle threshold. Check the status of the Remote input contact.
Alarm messages appear.	Anomalies present of alarm thresholds set have been exceeded.	Check the connection of the control unit with the valve actuators chain. Check the type of alarm with the indications on page 19 and with the programming carried out.
The alarms do not activate the signalling devices.	Errors in the wiring. No alarm devices power supply.	The alarm devices must be powered by external voltage. At rest, the alarm relays have closed contact, which opens in the case of an event.
The post-cleaning starts during a conventional cleaning cycle.	Fan Threshold set too high. The fan input contact has been opened during the cycle.	Check the Fan OFF threshold for post-cleaning. Check the status of the fan input contact.
Post-cleaning does not start when the normal cleaning cycle ends.	Fan Threshold set too low. No post-cleaning cycles have been programmed. The fan input contact is closed.	Check that with the fan off, the pressure measured is lower than the Fan threshold for post-cleaning. Check that the number of post-cleaning cycles is different to zero. Check the status of the fan input contact, if in Manual modes.
The economiser occasionally resets or controls the solenoid valves casually.	Check that there is no electro-magnetic interference on the power supply line, coming from motors, punching machines, welders, plasma cutters, etc.	Install a suppressor filter on the control unit power supply input. Power the control unit with a separate line, not deriving from that of the power line that powers the machines.
With the fan off, the display does not show 0.0 kPa.	Incorrect Zero dP calibration.	Calibrate the Zero dP appropriately or run the self-calibration function, explained ion page 13.

TURBO s.r.l.
Electronic Control Systems for Dust Collectors
e-mail: info@turbocontrols.it web: www.turbocontrols.eu

NOTES:

TURBO s.r.l.
Electronic Control Systems for Dust Collectors
e-mail: info@turbocontrols.it web: www.turbocontrols.eu

TURBO s.r.l. Dust Filter Components
Via Centro Industriale Europeo, 33 – Turate (CO) Italy
Tel ++39 0362 574024 Fax ++39 0362 574092