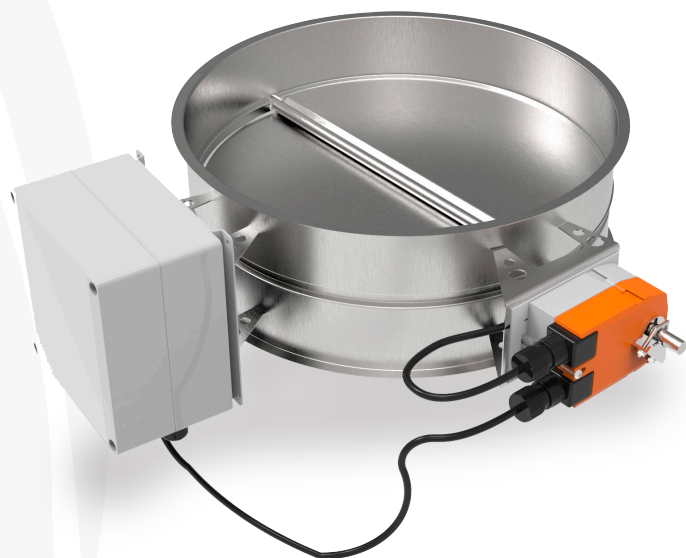


ENERVEX SMDS™ - MODULATING DAMPER SYSTEM

010.2120.1118

03.22

Installation & Operating Manual



READ AND SAVE THESE INSTRUCTIONS!



UL File E467733
UL File E484712

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Symbol Legend

The following terms are used throughout this manual to bring attention to the presence of potential hazards, or to important information concerning the product.



DANGER: Indicates an imminent hazardous situation which, if not avoided, will result in death, serious injury or substantial property damage.



WARNING: Indicates an imminent hazardous situation which, if not avoided, may result in personal injury or property damage.



DANGER: Indicates an imminent electrical shock hazard which, if not avoided, will result in death, serious injury or substantial property damage.

How to use this manual

This installation manual does not contain any system design documentation. System design documentation is available from any authorized ENERVEX representative. Accessories, fans, and motor speed controllers are not covered by this manual. Please refer to these component's individual manuals.

TO REDUCE THE RISK OF FIRE, ELECTRICAL SHOCK OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

1. Use this unit in the manner intended by the manufacturer. If you have questions, contact the manufacturer at the address or telephone number listed on the front of the manual.
2. Before servicing or cleaning the unit, switch off at service panel and lock service panel to prevent power from being switched on accidentally.
3. Installation work and electrical wiring must be done by a qualified person(s) in accordance with applicable codes and standards.
4. Follow the appliance manufacturer's guidelines and safety standards such as those published by the National Fire Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.
5. This unit must be grounded.

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1. GENERAL INFORMATION

1.1 Introduction

These instructions provide both general guidelines and special requirements for all parts in the SMDS product line. Before specifying a design or beginning an installation please carefully review these instructions. Contact local building or fire officials about restrictions and installation inspection in your area.

1.2 Features

The SMDS is a self-sensing, modulating damper and draft control system used to maintain a required pressure negative or positive) in an appliance connector. It can be used with Category I, II, III & IV heating appliance systems

The system consists of a single-blade SDF or SDM, Modulating Damper with an integrated and programmable EBC 24, Modulating Pressure Control. The EBC 24 controls the damper position and maintains a constant draft for the heating appliance connector. The SMDS system is supplied as a complete integrated prewired package with a single-blade damper and attached actuator, control(s), bi-directional pressure sensor, draft probe and under- and over-pressure safety functions. The system has true under-pressure and over-pressure protection independant of a damper end-switch. If excessive pressure builds up between the heating appliance outlet and the damper, the heating appliance will be shut down and the damper will open completely to relieve the pressure.

The SDF Damper has pressure-tight shaft bearings and the single-blade damper has a corrosion and temperature resistant graphite gasket (Viton blade seal optional) that prevents flue gas from flowing back into the heating appliance when not operating.

It has condensate-blockage prevention system for positive pressure appliances. "Plug-n-Play" monitors all terminals and registers components attached. Any errors detected during operation are shown on the digital display screen.

USB and integrated webserver for remote monitoring, configuration and firmware upgrade is standard and so is the selectable and adjustable bi-directional and uni-directional operating modes.

Modbus protocol is included with the EBC 24 controller and allows it to operate as a Modbus slave device. It can respond to a master device (typically a heating appliance) but cannot initiate communications.

The system is available in sizes from 4" to 18" ID. The SDF Damper unit is rated for 1400°F continuous operation and is resistant to corrosion due to the 316L-PCM stainless steel construction.

1.3 Components

The SMDS system consists of the components shown in Fig. 1.

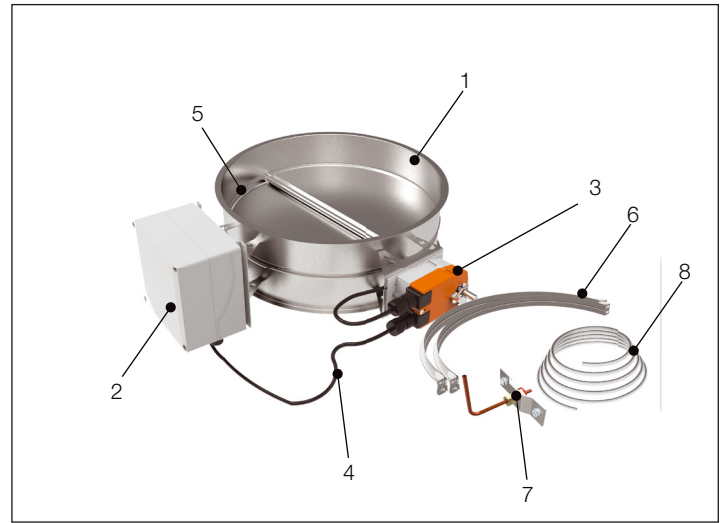


Fig 1

1. SDF Damper
2. EBC 24 Controller with pressure sensor
3. Actuator
4. Wire connection
5. Graphite Seal
6. V-bands
7. Stack Probe
8. Silicone Tube

1.4 Shipping

The SMDS unit is shipped in a protected in a corrugated box.

Do not place other products or items on top of the box.

After unpacking, the product must be handled in a way to prevent damage to the collars and the ventilator housing.

1.5 Listings

The SDF Modulating Damper is UL Listed to UL 378 for Draft Equipment, UL 17 for Vent or Chimney Connector Dampers for Oil-Fired Appliances and ULC/ORD-C378 (1975) for Draft Equipment.

The EBC 24 Modulating Fan Control is UL Listed to UL 378 for Draft Equipment, UL 60947 for Low Voltage Switchgear and Controlgear and CSA C22.2 No. 14-95 Standard for IndustrialControl Equipment.

Meets ANSI Z21.66-1996 Automatic Vent Damper Devices For Use With Gas-fired Appliances and all requirements of NFPA54 (ANSI Z223.1), National Fuel Gas Code, IFGC, International Fuel Gas Code and IMC, the International Mechanical Code and most other relevant codes.

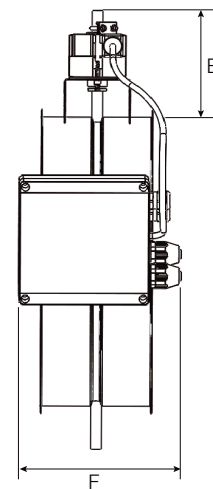
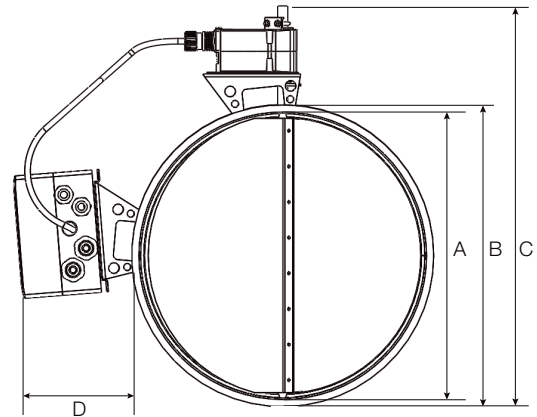
1.6 Warranty

2-year factory warranty (see back cover). Complete warranty conditions are available from ENERVEX Inc.

2. SPECIFICATIONS AND DIMENSIONS

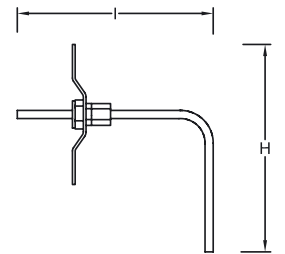
2.1 Specifications

EBC 24 Control		
Power supply	V	1x120VAC / 60 Hz
Amperage	A	0.4T/6.3T/250V(JDYX2/8)
Operating temperature	°F/°C	-4 to 122 / -20 to 50
Range of operation	inWC / Pa	-1.00 to +1.00 / -250 to +250
Tolerance	inWC / Pa	0.01 / 3 +/-10%
Output Current	mA	max. 10
Max. Load		120 VAC / 8A
Real-time PID Control Method		Infinitely variable
Real-time PID Signal Stability		+/- 0.5%
Ramp Up/Down Time	Seconds	max 20
Output	VDC	0-10
EMC standard	Emission	UL 60947
	Immunity	EN50 082-2
XTP3 Sensor		
Mode		Bi-directional
Power supply	VDC	12-36 / 24V
Amperage	mA	<20
Output	VDC	0-10
Operating temperature	°F / °C	0 to 160 / -18 to 71
Accuracy		+/- 0.08%
Stack Probe		
Dimensions	H in / mm	4.25 / 108
	I in / mm	3.50 / 89



2.2 Dimensions

in/mm	SDF 4	SDF 6	SDF 8	SDF 10	SDF 12	SDF 14	SDF 16	SDF 18
A	3.94 / 100	5.91 / 150	7.87 / 200	9.84 / 250	11.81 / 300	13.78 / 350	15.75 / 400	18.00 / 457
B	4.88 / 124	6.85 / 174	8.82 / 224	10.79 / 274	12.76 / 324	14.72 / 374	16.69 / 424	19.00 (483)
C	8.86 / 225	10.83 / 275	12.80 / 325	14.76 / 375	16.73 / 425	18.70 / 475	20.67 / 525	22.91 / 582
D	5.13 / 130	5.13 / 130	5.13 / 130	5.13 / 130	5.13 / 130	5.13 / 130	5.13 / 130	5.13 / 130
E	5.04/ 128	5.04/ 128	5.04/ 128	5.04/ 128	5.04/ 128	5.04/ 128	5.04/ 128	5.04/ 128
F	6.89 / 175	6.89 / 175	6.89 / 175	6.89 / 175	6.89 / 175	6.89 / 175	6.89 / 175	6.89 / 175
G	8.00 / 203	8.00 / 203	8.00 / 203	8.00 / 203	8.00 / 203	8.00 / 203	8.00 / 203	8.00 / 203
H	4.25 / 108	4.25 / 108	4.25 / 108	4.25 / 108	4.25 / 108	4.25 / 108	4.25 / 108	4.25 / 108
I	3.50 / 89	3.50 / 89	3.50 / 89	3.50 / 89	3.50 / 89	3.50 / 89	3.50 / 89	3.50 / 89



3. MECHANICAL INSTALLATION

3.1 Positioning

Place the SDF or SDM in the heating appliance connector. An arrow indicating the flow direction is engraved in the housing - make sure to follow this.

Insert the stack probe between the appliance and the SDF preferably at a min. distance of 3 times the connector diameter away from any elbow or tee.

A 45° Lateral Tee should be used between the appliance connector is connected to a horizontal section. See Fig. 2.



The stack probe should preferably be placed at a min. distance of 3 times the connector diameter away from any tee or fitting.

3.2 Assembly

The SDF connects to most standard pressure stacks with 1/2" flanges using V-bands and silicone sealant. Follow the procedures outlined in the stack manufacturer's installation manual for specific instructions.

The SDM has slip-fittings and connects to any chimney or vent that accepts this.

For assembly see Fig. 3.

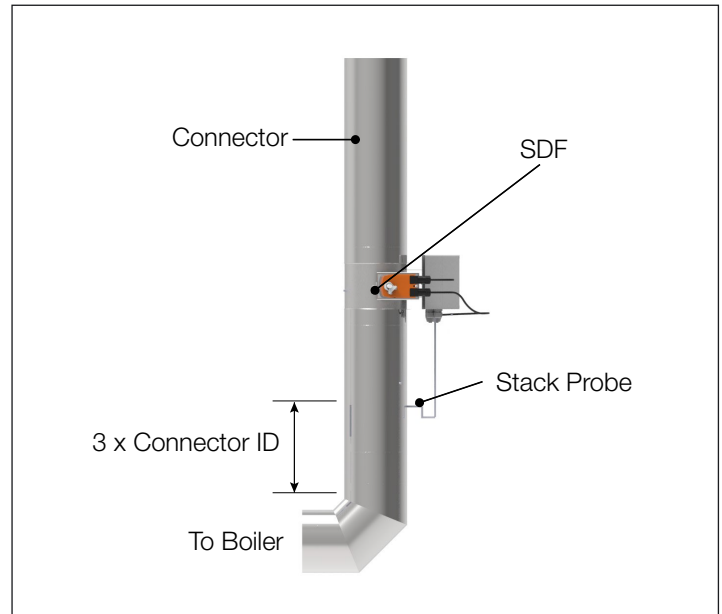


Fig 2

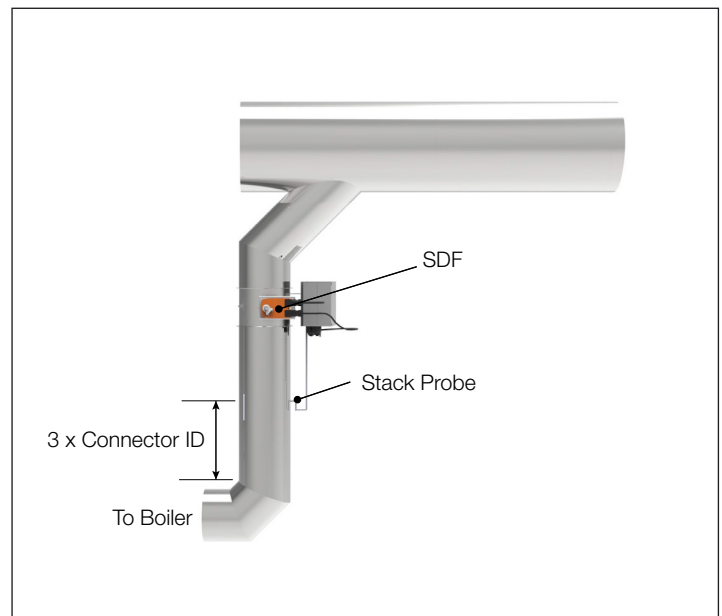


Fig 3

4. ELECTRICAL INSTALLATION

4.1 General


The SDF's actuator and the XTP sensor are both pre-wired inside the EBC 24 control box.

There are two safety systems available. One for excessive pressure and one for inadequate draft.

The terminals' uses are shown below and the terminal layout are shown in Fig 4:

Terminal	Use
1	Power Supply - G (Ground)
2	Power Supply - L1
3	Power Supply - N
4	Fan Motor Out - N
5	Fan Motor Out - L1 (regulating)
6	Fan Motor Out - G (Ground)
7	VFD Relay - NO
8	VFD Relay - C
9	Alarm Out - NC
10	Alarm Out - NO
11	Alarm Out - C
12	Voltage Input from Appliance / Boiler 1 Thermostat, Optocoupler (+) (10-120VAC/VDC)
13	Voltage Input from Appliance / Boiler 1 Thermostat, Optocoupler (-) (10-120VAC/VDC)
14	Burner 1 Relay Contact - NO (max 120VAC, 4A)
15	Burner 1 Relay Contact - C (max 120VAC, 4A)
16	Voltage Input from Appliance / Boiler 2 Thermostat, Optocoupler (+) (10-120VAC/VDC)
17	Voltage Input from Appliance / Boiler 2 Thermostat, Optocoupler (-) (10-120VAC/VDC)


DANGER



Turn off electrical power before servicing. Contact with live electric components can cause shock or death.



EBC 24 is designed for 1x120VAC power supply only.



The wiring in this manual is in accordance with NFPA 70. All field wiring must be installed in flexible or rigid metal conduit and comply with local codes, or in their absence, the National Electrical Code, NFPA 70.

Terminal	Use
18	Burner 2 Relay Contact - NO (max 120VAC, 4A)
19	Burner 2 Relay Contact - C (max 120VAC, 4A)
20	Control Signal - VFD (0VDC)
21	Control Signal - VFD (0-10VDC)
22	XTP - 0VDC Power Supply (transducer)
23	XTP - 24VDC Power Supply (transducer)
24	XTP - 0-10VDC Return Signal (transducer)
25	RS485 0V
26	RS485 A
27	RS485 B
28	0VDC Power Supply
29	24VDC Power Supply (Max 100mA)
30	PDS - NC (Normally Closed) Proven Draft Switch
31	PDS - NO (Normally Open) Proven Draft Switch
32	PDS - C Proven Draft Switch
33	Buzzer - 24VDC Supply
34	Not used
35	Buzzer Signal

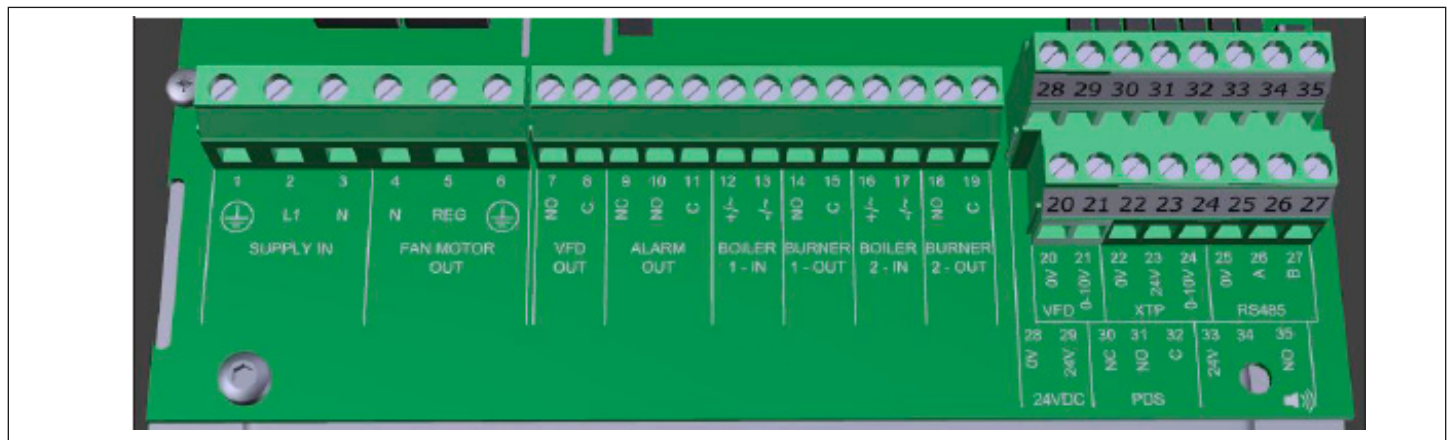


Fig 4

4.2 Wiring Diagram

The SMDS System is shipped pre-assembled and pre-wired for easy installation.

The EBC 24 is pre-programmed for bi-directional draft control but can be set up for uni-directional operation if preferred.

The integrated XTP3 sensor has a pressure range of -1.00 to +1.00 inchWC. It defaults to intermittent mode, so it requires a call for heat on the boiler input terminals 12/13 or 16/17.

The following are the only connections required when wiring the system (see Fig. 5):

- Terminals 1, 2, and 3 are for required the 120V power supply.
- Call for heat for Boiler 1 (terminals 12/13).
- Relay Output signals for Boiler 1 (terminals 14/15)
- Modbus RTU communication can be established through RS-485 terminals 25, 26 and 27.
- Wire Damper control signal (Y-WH) to terminal 21.

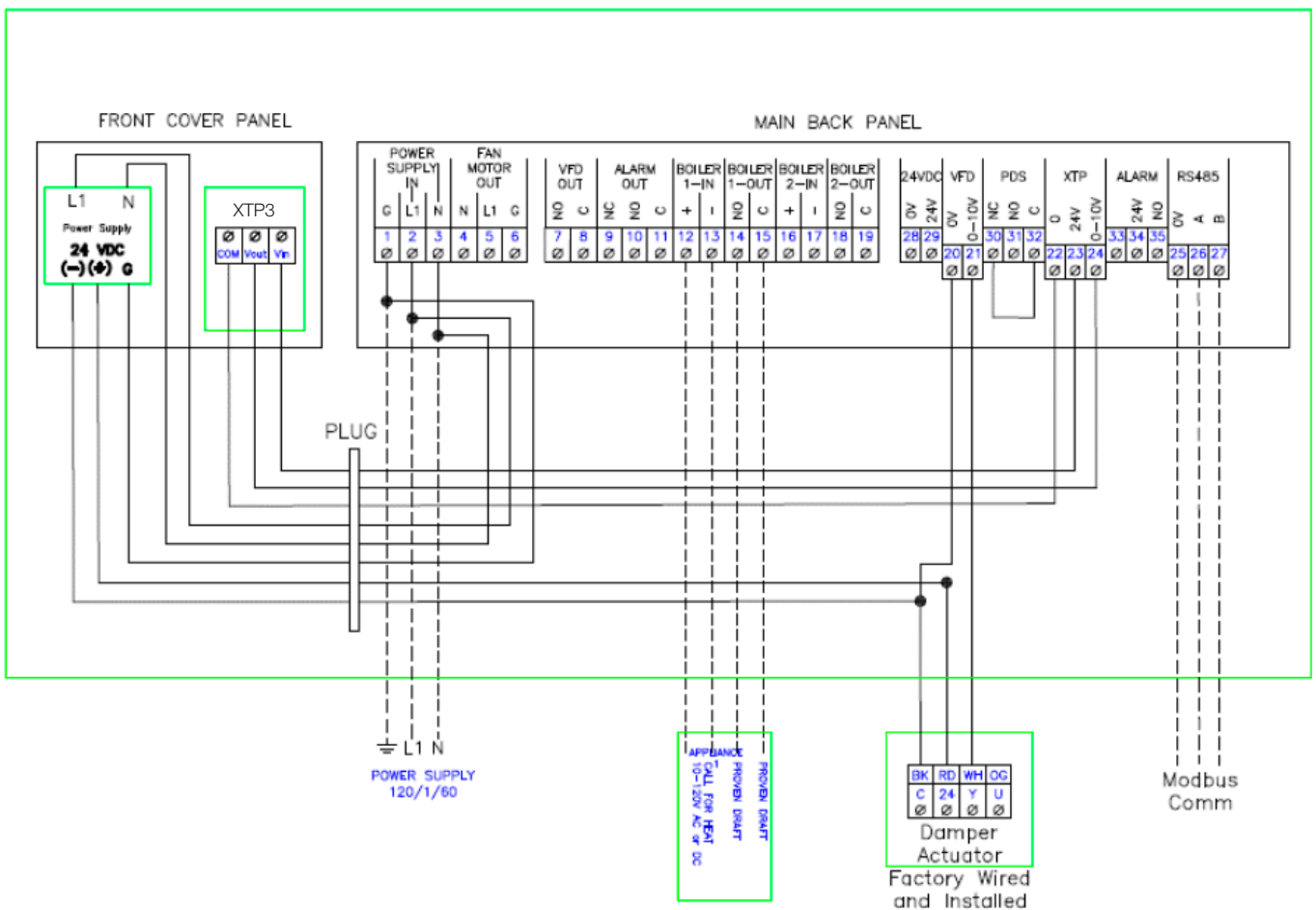


Fig 5

5. START-UP AND CONFIGURATION

5.1 General

When power is supplied to the control it will go through a start-up procedure to detect and check all components and appliances installed.

After turning ON power, the first screen shows the current setup mode. It should show Damper mode. See Fig. 6.

Second screen asks you to enter a pin code. See Fig. 7. Enter the code "3142". The cursor will default to the first digit. Press the ▲ button until it shows "3", then press the "✓" key to accept. If you overshoot the number, use the ▼ button to go back. The cursor will jump to next position. Repeat the procedure until all digits are entered.

The control will continue the start up procedure and show the current software version. See Fig. 8

Finally, the Main Menu will show. See Fig 9.

5.2 Basic Control Set-up

Once in the Main Menu the control can be programmed. To move around in a menu use the ▲ and ▼ buttons and press the "✓" key to select the desired menu item.

Most parameters are pre-programmed from factory and do not need to be changed. The control is set up to operate in bi-directional mode as default. For all the default parameter setups, please see Section 8.

The most common parameters to adjust are:

- Pressure Set Point (SP)
- Alarm Limit
- Alarm Delay

5.3 Set Pressure Set Point (Menu 11)

For setting the draft or exhaust pressure. The value shows up as negative value on the display. The lowest possible value is 0.0 inWC. (The [inWC] units can be changed to [Pa] in the menu 512.)

Navigate to "REGULATION" -> "SET PRESSURE". Enter the desired set point using the ▲ and ▼ buttons.

5.4 Set Alarm Limit (Menu 161)

For setting the Alarm Limit.

Navigate to "REGULATION" -> "PROPERTIES" -> "ALARM LIMIT". Enter the setting in % of setpoint (100-300%). The alarm limit prevents system pressure to increase beyond 300% of the setpoint.

To better understand the Alarm Limit parameter in a bi-directional realm, consider these examples:

Example 1:

Positive Setpoint SP = 0.1inWC, Alarm Limit = 300%, Alarm Delay 120s).

At 0.3 inWC, the controller starts a countdown for 120s before it interrupts boiler operation. If at any point during this countdown the pressure draft increases, then normal

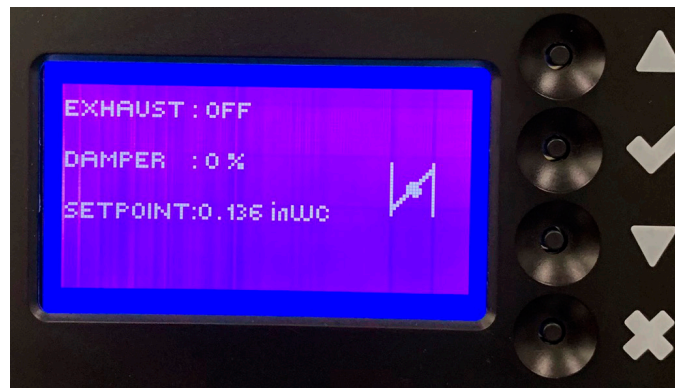


Fig 6



Fig 7



Fig 8



Fig 9

operation resumes.

Example 2:

Negative Setpoint SP = -0.1inWC, Alarm Limit = 300%, Alarm Delay 120s).

At +0.2 inWC, the controller starts a countdown for 120s before it interrupts boiler operation. If at any point during this countdown the pressure draft increases, then normal operation resumes.

5.5 Set Alarm Delay (Menu 162)

For setting the Alarm Delay.

Navigate to "REGULATION" -> "PROPERTIES" -> "ALARM DELAY". Enter the setting in Seconds (0-120s).

5.6 Suggested Parameter Setting for SMDS System

For most applications, we recommend parameter settings as shown in Fig. 10

5.7 Modbus Access (Menu 33)

To activate Modbus follow these steps:

Navigate to "SERVICE" -> "OPTION" -> "MODBUS". Enter the values for BAUDRATE, PARITY and ADDRESS.

5.8 Saving and Loading Configuration File (Menu 36)

To save or load a configuration file.

To SAVE a configuration file, navigate to "SERVICE" -> "USB CONFIG" -> "SAVE CONFIG FILE". Enter the file name, using the up and down buttons.

To LOAD a configuration file, navigate to "SERVICE" -> "USB CONFIG" -> "LOAD CONFIG FILE". Enter the file name, using the up and down buttons.

5.9 Data Logging to a USB Drive (Menu 362)

The controller can be set to log onto a USB-memory stick.

Navigate to "SERVICE" -> "USB CONFIG" -> "SAVE CONFIG FILE". Two files will be created: one with the alarm log and one with the values of the XTP sensors and 0-10V. The files are .CSV files. The output format is:

[Unix time], [Exhaust XTP 0-1024], [Intake XTP 0-1024], [Exhaust VFD 0-1024], [Intake VFD 0-1024], [Damper Out 0-1024], [MODS XTP 0-1024]. The value between 0-1024 is a fraction of 10V, meaning that a value of 423 equals 4.13 V.

5.10 Upgrading Firmware (Menu 365)

The EBC24 can be firmware upgraded using a USB-memory stick.

1. Insert the USB-memory stick with the firmware in the USB connector on the front of the control.
2. Go to the 365 menu, and select the correct file to be programmed.
3. Press the button to start the update. The update takes approx. two minutes.

Note! If the programming fails, power off the control. Press the "X" button and power up the control again. Doing this will re-upload the latest working firmware.

Controls Setting for SMDS System		
Menu Item	Parameter	Setting
11	Setpoint	*TBD at startup
12	Operation Mode	Intermittent
131	Pre-purge Time	30 sec
141	Post-purge Time	30 sec
151	Sensor Min	-1.000 inWC
152	Sensor Max	1.000 inWC
161	Alarm Limit	300%
162	Alarm Delay	60 sec
163	Speed Min	0
168	Pressure Mode	Bidirectional
169	Application	Mods

*Draft Setpoint depends on system setup and stack probe location.

Table 1



Do not adjust parameters - other than suggested in paragraphs 5.2 to 5.9 - without the advice and supervision of an authorized factory representative.

5.11 Actuator SET-UP AND Testing

The actuator is factory wired and ready to operate. However, before operating follow this procedure:

1. Verify wiring per system application in Section 4.2 of this manual.
1. Turn ON the power to the SMDS system.
1. Verify the direction rotation of the actuator by observing the indicator mark on the end of the damper shaft. When the damper is energized with 0 VDC input voltage, the damper should be in the closed position. If the damper is open at 0 VDC, change the position using the actuator clutch on the actuator face to reverse the rotation. Hold down the clutch button and rotate the damper shaft to the close position. See Fig. 10
1. Verify the Failsafe Position by removing input power to the damper actuator. When power is cut to the system, the damper should return to the fully open position. If the damper does not open, reverse the rotation by changing the failsafe switch position(CW/CCW) on the face of the actuator. See Fig 11

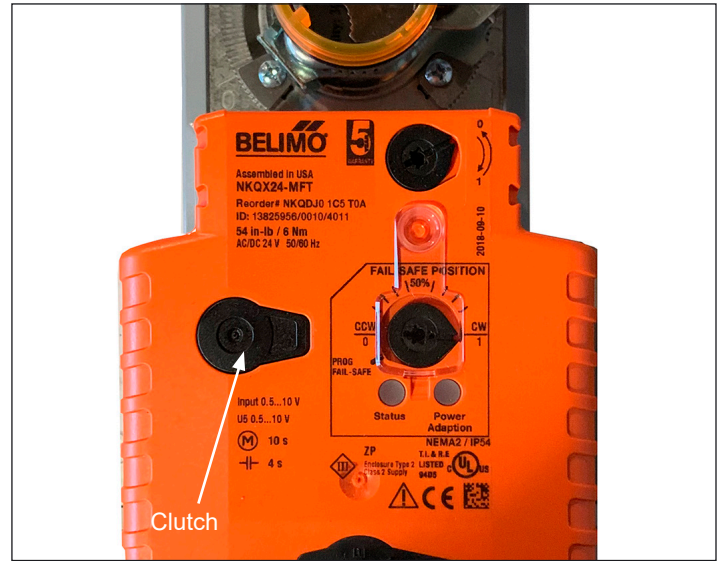


Fig 10



Fig 11

6. MODBUS RTU TRANSMISSION MODE

The EBC24 has a Modbus RTU communication protocol. An RS-485 standard connection is provided via terminals 25, 26 and 27 of the controller. This wiring system allows point to point and multi-point system connections. The EBC24 is a slave device in the network. The default communication baud rate is 19200, but the controller can be configured to other rates. The maximum cable length is 4000 ft (1220 meters) and the conductor size depends on the specific network. In general cable 18 AWG twisted pair, shielded cable is required. Communication cable should never be routed alongside line voltage and the cable type and insulation should be in accordance to national and local electrical codes.

See Table 2 for the required port pinout.

6.1 EBC24 Electrical Connections

The network cable should be connected to each EBC24 terminals following a daisy chain configuration as shown in the figure below. Route the network cable, from the master to each controller A(-), B(+) and 0V(G). Wire the shield to ground (0V), only on one side of the network. On larger networks a 120ohm termination resistor is required to prevent network reflection. Typically, this resistor is installed at the beginning and end of each network, across terminals 26 and 27. See Fig. 12

6.2 Communication parameters

The EBC24 controller allows read only communication of most parameters, except the start/stop bit and the setpoint bit. Those could be written as well. The default communication parameters are set to 19200 baud rate, 8 bit, even parity. See following Table 3 for additional Modbus RTU parameters and descriptions.

Terminal	Description
25	0V (Ground)
26	(A-) Negative Terminal
27	(B+) Postive Terminal

Table 2

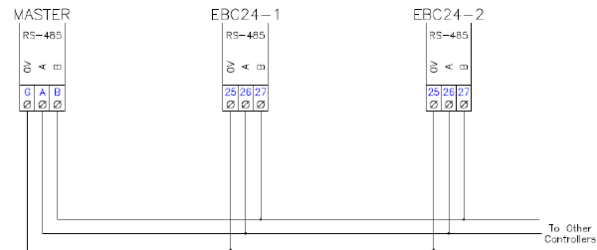


Fig 12

Modbus for ENERVEX SMDS								
Modbus:		RTU						
Baudrate:		Configurable 9600, 19200 (default), 38400, 56000, 57600						
Parity:		Configurable None, Odd, Even (default)						
Register Name	R/W	Register Type	Register Address	Unit	Min	Max	Scale	Remark
Start/Stop	R/W	Holding	0	-	0	0		Bit 0, Burner 1 On, bit 1: Burner 2 On
Setpoint	R/W	Holding	1	Pa			1	
Alarm	R	Input	4096					0: No Alarm 1: Draft Alarm (exhaust) 2: Overdraft alarm (MODS mode) 3: Draft alarm (intake mode) 4: Power fault 5: Exhaust error (missing xtp in exh mode) 6: Intake error 7: Start alarm 8: Reserved / not implemented 9: Draft alarm (from PDS) 10: Hardware fault (PDS input fault)
Pressure	R	Input	4097	Pa			1	
VFD Putput	R	Input	4098	%			1	
PDS	R	Input	4099					0: Both open 1: NO closed (ie. Error!) 2: NC closed (ok) 3: Both closed (hardware fault)

Table 3

7. SETTINGS & TROUBLESHOOTING

7.1 Troubleshooting

Most terminal connections are monitored for proper operation. LED lights indicate operating status. If a light is lit, it indicates everything is functioning properly while a light out indicates a problem on the circuit it monitors. In addition, fault codes are shown on the display.

The fault codes are shown in table 4.

Display	Explanation
A1 Draft Exhaust	Insufficient draft pressure. Can be caused by: 1. Chimney fan does not have enough capacity 2. Mechanical or electrical damper failure 3. Blocked chimney 4. Introduction of excessive dilution air 5. XTP sensor not responding correctly
A2 Power Fault	Indicates there has been a power fault
A3 XTP-Exhaust	Indicates a disconnected signal from the XTP-Sensor on the exhaust side to the control Can be caused by: 1. Loose connections 2. Faulty XTP-sensor 3. Faulty controller
A4 Error Start	Indicates that the control has not been able to release the heating appliance(s) within 15 minutes.
A5 Alarm Override	Indicates alarm has been ignored
A6 Draft Input	Missing signal from PDS-function. Indicates a faulty function.
A7 RS485 error	No communication between EBC31 and BACnet network
A8 Priority	The draft has been insufficient and therefore the control has gone into Priority mode

Table 4

8. MENU SYSTEM

8.1 Parameter Table

The menu system provides access to all the controller's functions, parameters and default values.

Menu	Sub-menu	Function	Display	Description	Range	Default
1		Exhaust	EXHAUST			
	11	Draft set point	SET EXHAUST	Adjustment of exhaust setpoint	2%-95% of sensor	17%
	12	Operation mode	EXHAUST MODE	Continuous or intermittent operation. In intermittent mode the exhaust fan runs only if one or more boiler inputs are active	Continuous/ Intermittent	Intermittent
	13	Pre-purge	PRE-PURGE	Pre-purge settings		
	131	Time	TIME	Pre-purge time in seconds	0-1800	0
	132	Operation mode	SPEED MODE	Select variable if the post-purge should be controlled by the XTP-sensor or have a fixed speed	Variable / FIX 20-100%	Variable
	14	Post-purge	POST-PURGE	Post-purge settings		
	141	Time	TIME	Post-purge time in seconds	0-1800	0
	142	Operation mode	SPEED MODE	Select variable if the post-purge should be controlled by the XTP-sensor or have a fixed speed	Variable / FIX 20-100%	Variable
	15	Sensor	SENSOR			
	151	Min. pressure	RANGE MIN	XTP Minimum pressure in Pa	-500 to 500 Pa	0
	152	Max. pressure	RANGE MAX	XTP Maximum pressure in Pa	0 to 1000 Pa	150 Pa
	16	Parameters	PROPERTIES			
	161	Alarm limit draft	ALARM LIMIT	Select alarm limit for the draft. The value is in % of set point.	If 167 = "Negative ->50-80% If 167 = "Positive" -> 150-300%	64% (167 = "Negative" 144% (167 = "Positive)
	162	Alarm delay	ALARM DELAY	Select an alarm delay from 0-120 seconds	0-120s	15
	163	Min. voltage	SPEED MIN	Minimum speed of fan	0- MENU 164	15%
	164	Max. voltage	SPEED MAX	Maximum speed fan	MENU 163 - 100%	100
	165	Xp	EXHAUST Xp	Proportional gain.	0-30	15
	166	Ti	EXHAUST Ti	Integral gain	0-30	8
	167	Sampling rate	SAMPLING RATE	Set the sampling rate for the PID Loop	1-10	10
	168	Pressure type	PRESSURE MODE	Positive or negative pressure in the stack	Positive or Negative	Negative
	169	Application	APPLICATION	Sets if the control has to work as Exhaust or Intake	Exhaust / Intake	Exhaust
2		ALARM				
	21	Alarm Status	ERROR	The error is shown here		
	22	Alarm log	ERROR LOG	The last 10 alarms will be saved in the menu		
	23	Reset	RESET	Selecting "AUTO" will automatic reset the alarm after 15 seconds. If "MAN" is selected, the "X" has to be pressed.	MAN / AUTO	AUTO
3		Service	SERVICE			
	31	Version No.	VERSION	Software version is shown		
	32	I/O	I/O-VIEW			
	321	BURNER I/O	AUX OUT XXX AUX IN XX	In this menu the status of the boiler I/O is shown. By pressing √ the AUX OUT relays can be activated by pressing up and down. Multiple activations of the a button will move from relay 1 to 6		
	322	EXHAUST I/O	EXH XTP x.xV OFF EXH VFD x.xV OFF	XTP, VFD and VFD relay status for Exhaust.		
	323	Draft input	DRAFT INPUT ON/OFF	Draft Input I/O status.		
	324	Alarm relay	ALARM OUTPUT ON/OFF	Alarm relay output status.		
	33	Options	OPTION			
	331	Bearing cycle	BEARING CYCLE	Selecting "YES" will enable a bearing cycle on present fans, if the boilers has not been active for 24 hours	ON/OFF	ON
	332	Allow prime		Selecting a number from 0-250 will enable the prime function. This allows the boilers to be activated even if insufficient draft is present	0-250 s / of	OFF
	333	Draft Input Delay	DRAFT INPUT DELAY	The delay before the control goes into Draft Alarm	0-20 s	0 s
	34	Factory reset	FACTORY	If "YES" is selected, a factory reset will be performed.	YES/NO	NO

Menu	Sub-menu	Function	Display	Description	Range	Default
	36	USB configuration	USB CONFIG			
	361	Format USB	FORMAT USB	Selecting "YES" will format the USB flash drive. Notice! All data will be erased!	YES / NO	NO
	362	Data Log	DATA LOG USB / INTERNAL	Selecting "USB" will store the alarm log on the USB flash drive, "INT" will store the log in the internal memory.	USB / INT	INT
	363	Save config. file	SAVE CONFIG FILE	Selecting "YES" provides the possibility to select configuration files stored on the USB flash drive	YES / NO	NO
	364	Load config. file	LOAD CONFIG FILE	Selecting "YES" will download the current configuration to the USB flash drive.	YES / NO	NO
	365	Upgrade firmware	UPGRADE FIRMWARE	This function provides the possibility to upgrade the firmware by means of a USB Stick		
4		User Interface	USER INTERFACE			
	41	Display	DISPLAY			
	411	Language	LANGUAGE	Language	ENG / FRA / ESP	ENG
	412	Pressure Units	UNITS	Pa or inWC units	Pa / inWC	inWC
	413	LCD backlight	LCD BACKLIGHT	LCD backlight turned on or not. The USE parameter will cause the backlight to be turned on if a button is pressed.	ON / OFF / USE	ON
	414	LCD contrast	LCD CONTRAST		10 – 100 %	50



Do not adjust parameters - other than suggested in paragraphs 5.2 to 5.9 - without the advice and supervision of an authorized factory representative.

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