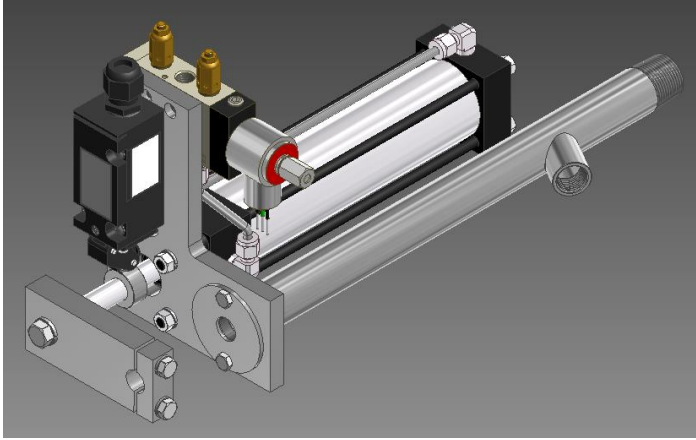


0800027 Retract Installation and Operation Manual



Part Number
0800027

**KEEP THIS MANUAL IN A SAFE PLACE
FOR FUTURE REFERENCE**

READ THIS MANUAL BEFORE USING THIS PRODUCT. FAILURE TO FOLLOW THE INSTRUCTIONS AND SAFETY PRECAUTIONS IN THIS MANUAL CAN RESULT IN SERIOUS INJURY OR DEATH OR DAMAGE TO EQUIPMENT.

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1.0 Important Safety Information



Read All Instructions before Using Equipment



The instructions provided in this manual have been prepared to serve as a general guide. It is intended for use by qualified personnel with knowledge of equipment of this type. It is not intended to cover all possible variations in equipment or to provide for specific operating problems which may arise.

You are responsible for adhering to all warnings or cautions provided in this Manual.

In addition to any general safety measures provided in this Manual, you must comply with all current national, state, local and company safety regulations at all times.

Safety Symbols used in this manual comply with ISO 3864 & 7010.

THESE SYMBOLS ARE USED TO ALERT YOU TO POTENTIAL PERSONAL INJURY HAZARDS.

OBEY ALL SAFETY MESSAGES THAT FOLLOW THESE SYMBOLS TO AVOID POSSIBLE INJURY OR DEATH.



Indicates a hazard with a high level of risk which, if not avoided will result in death or serious injury.



Indicates a hazard with a medium level of risk which, if not avoided could result in death or serious injury.



Indicates a hazard with a low level of risk which, if not avoided will result in minor or moderate injury.



 **DANGER**
HAZARDOUS VOLTAGE



When installed with a High Energy Ignition System, the equipment contains **DANGEROUS AND POTENTIALLY LETHAL VOLTAGE**. To avoid risk of serious injury from electric shock, always follow the safety precautions listed below:

Disconnect power before servicing the equipment.

Do not open the equipment's cover when the equipment is energized.

Do not join or separate any connection to the equipment when the equipment is energized.

Do not apply power to the equipment without covers in place.

The equipment must be installed and serviced by qualified personnel in accordance with applicable local and national codes, standards, and ordinances.



 **DANGER**
EXPLOSION HAZARD

Do not open the equipment cover or service the equipment if an Explosive Atmosphere may be present.

The equipment must be installed and serviced by qualified personnel in accordance with applicable local and national codes, standards, and ordinances.

Do not disassemble the internal electrical assemblies. Improper reassembly of internal components could compromise hazardous area ratings.

Chentronics' Retract 08000027 may be equipped with a limit switch and solenoid that carry the following ratings:


Markings on Limit Switch


IECEX

Gas Explosion Protection: Ex db eb IIC T6 Gb

Dust Explosion Protection: Ex tb IIIC T80 °C Db

ATEX

Gas Explosion Protection:  II 2 G Ex db eb IIC T6 Gb

Dust Explosion Protection:  II 2 D Ex tb IIIC T80 °C Db

Certificates

IECEX

Gas Explosion Protection: IECEX BVS 17.0011X

Dust Explosion Protection: IECEX BVS 17.0011X

ATEX

Gas Explosion Protection: BVS 17 ATEX E 021X

Dust Explosion Protection: BVS 17 ATEX E 021X

Markings on Solenoid Valve

Solenoid Valve Option	B	E	C	D
Voltage	110-120VAC, 60Hz	220-240VAC, 50/60 Hz	220-240VAC, 50/60 Hz	24 VDC
Ratings	Class I, Division 1 Groups C & D Class I, Division 2 Groups A & B Class II, Division 1 Groups E, F & G		Class I, Division 1 Groups A, B, C & D Class II, Division 1, Groups E, F & G	

Table 1: Solenoid Valve Ratings

2.0 Definitions

Spark – An electric current arc.

High Energy Ignition (H.E.I.) – Electric spark ignition system utilizing high energy sparks for direct ignition of hydrocarbon fuels such as gas, diesel, or #6 oil.

High Energy Exciter – An electronic device that stores electric charge and releases it cyclically in abrupt bursts to an igniter to create high power sparks.

High Energy Igniter – Equipment in an H.E.I. system which when connected to a High Energy Exciter produces sparks specifically for ignition. This equipment is consumable and will periodically need to be replaced.

3.0 Chentronics® High Energy Ignition System Overview

Chentronics® High Energy Ignition (HEI) systems directly ignite burner fuels by providing short time duration (impulse), high current electrical arcs commonly referred to as *sparks*. These sparks are generated by abruptly releasing electrical energy (charge) stored in large capacitors. The energy is released through an igniter driver circuit called a *pulse forming network* to specialized high energy igniters. The result is a high power spark with increased ability to ignite fuels.

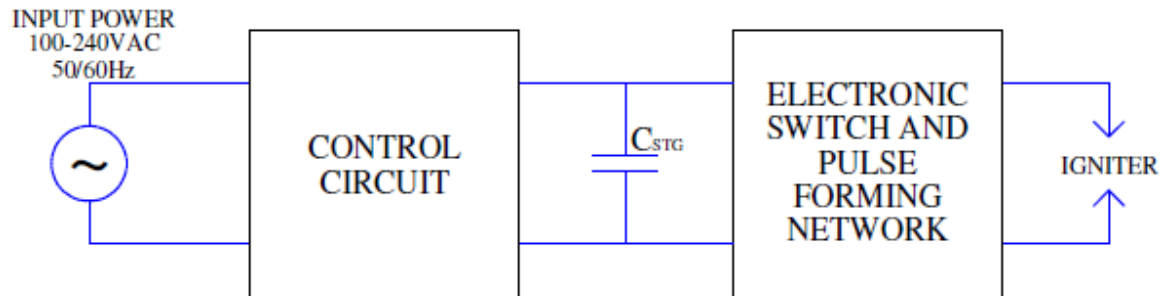


Figure 1: High Energy Exciter basic schematic.

Chentronics® High Energy Ignition Systems are designed to operate in conditions of extreme temperature, moisture, and contamination; creating high power sparks that dependably provide direct spark ignition to a wide range of fuels in a wide range of adverse conditions. The igniter can spark even under water.



Figure 2: Igniter firing in water.

NOTE: Firing igniters submerged in water will cause them to excessively wear and reach end of life very quickly.

4.0 Retract System Specifications

4.1 Description of Equipment

The Chentronics® retract system is used to insert and retract Chentronics® Igniters and Rods to prevent damage to the equipment from flame radiation, direct contact with flame or extreme temperatures; the system uses a pneumatic cylinder, controlled by a solenoid valve. With proper air supplied to the pneumatic cylinder, when power is applied to the solenoid the system will insert; with no power applied the system retracts. The 08000027 retract is available with multiple options and explanations of some of these can be found in this manual. See drawing 08000027 for the full list of configurable options.

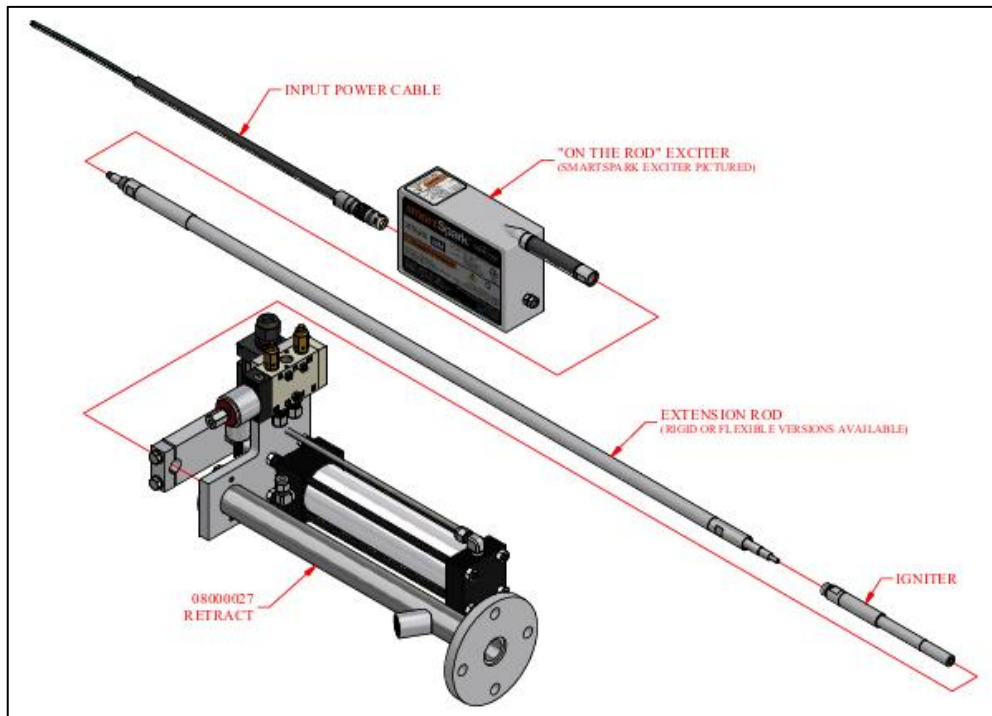


Figure 3: Typical system general arrangement.

4.2 Limit Switch

The 08000027 retract system may be ordered with a single limit switch which indicates when the retract system is in the fully inserted position. The limit switch uses a double-pole single-throw snap action contact.

Contacts	Behavior
23 to 24	Normally Open
11 to 12	Normally Closed

Table 2: Limit Switch Contact Behavior

4.3 Solenoid Valve

The solenoid valve on the 08000027 retract system is 2 position, 4 way and is available with the following voltage configurations: 110-120VAC, 60Hz, 220-240VAC, 50/60 Hz or 24VDC. Flow control mufflers are installed into exhaust ports 3 & 5. The mufflers are set at Chentronics® so that the insertion/retraction speed does not damage the equipment.

Solenoid Option	B	C	E	D
Voltage	110-120VAC, 60Hz	220-240VAC, 50/60 Hz		24 VDC
Wattage (W)	1.8	6.3		1.8
Flow Coefficient, Cv	1.7			
Supply Pressure Range	14.5-120 psig			

Table 3: Solenoid Valve Specifications

Wire	Function
18AWG, Green or Green/Yellow	Earth Bond
18AWG Black or Red	Line Input
18 AWG Black or Red	Line Input

Table 4: Solenoid Wiring Information

*Note: the 24 VDC solenoid is polarity independent.

4.4 Pneumatic Cylinder

The 08000027 comes standard with an aluminum pneumatic cylinder. The system should not be supplied with more than 120 psig. Displacement volumes can be found in Table 5.

Stroke Length (in [mm])	Displacement Volume (cuft [cc])
8 [203]	0.008 [232]
12 [305]	0.012 [348]
20 [508]	0.020 [580]

Table 5: Cylinder Displacement Volumes

5.0 Installation Instructions

5.1 Installation Overview

After the retract has been mounted to the burner front, the ignition system should be installed as shown in Figure 4. The solenoid power and air inputs should be installed per local and national codes, standards, and ordinances. The limit switch should be wired per local and national codes, standards, and ordinances.

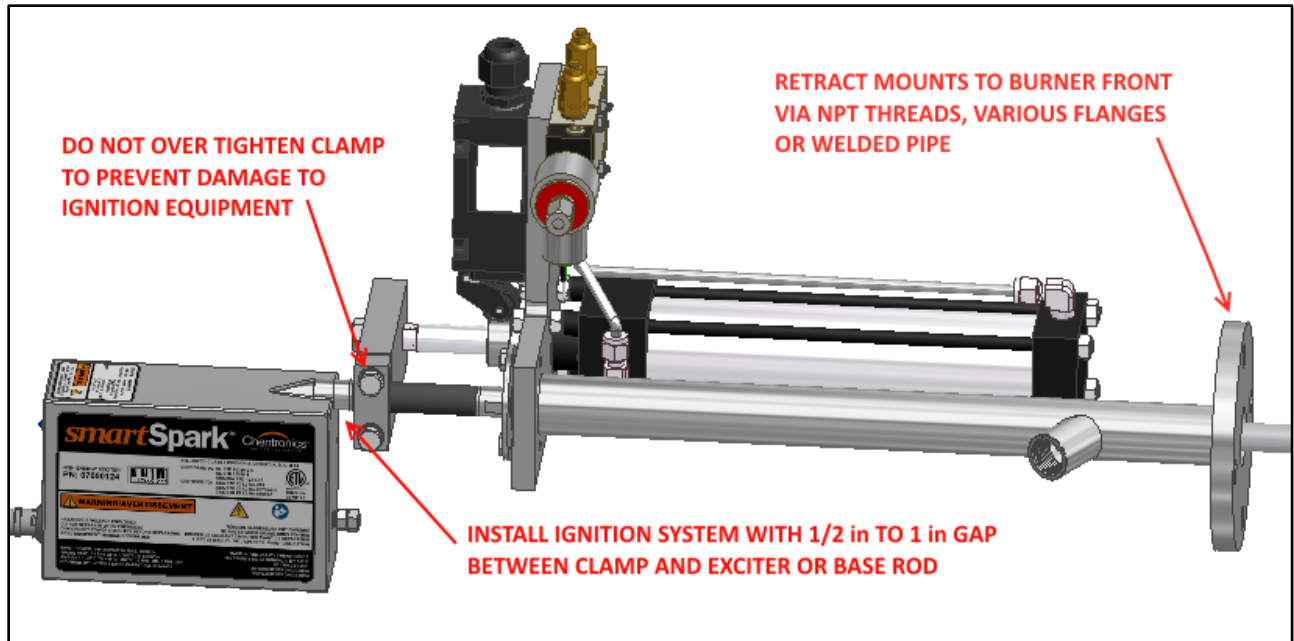


Figure 4: Recommended Clamp Position

5.2 System Schematic Diagram

Figure 5 in this section describes equipment functionality. Leads and terminal blocks are described on the left.

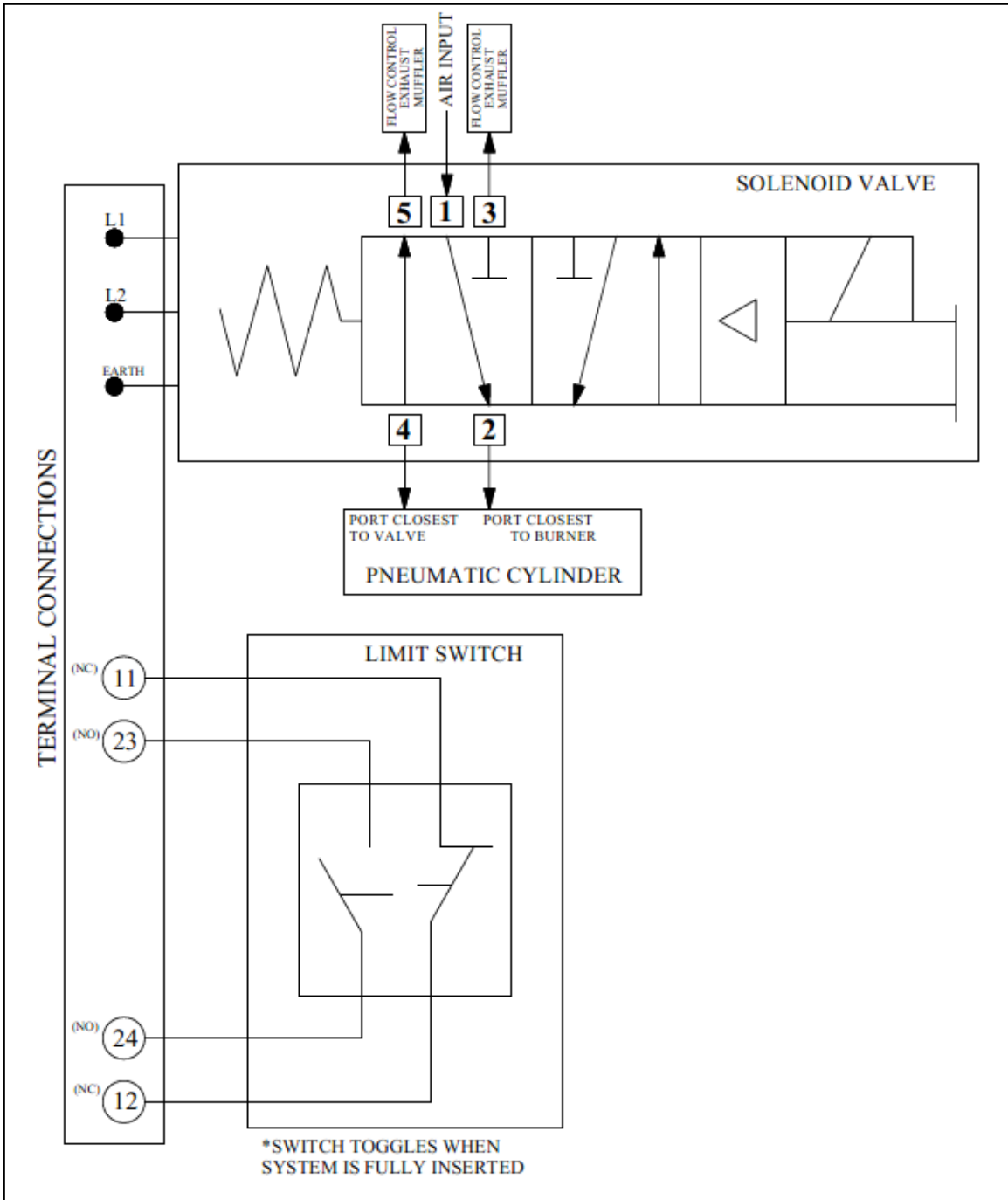


Figure 5: System Schematic Diagram

6.0 System Operational Information

6.1 Applying Power to Equipment



Figure 6: General Retract Behavior

6.2 Commanding High Energy Ignition System to Spark

Please refer to the manual of the specific High Energy Exciter used in your system for this information.

7.0 Sample Scope of Supply

The following is a sample of scope of supply parts available for use with the Chentronics® 08000027 Retract System. For additional parts and technical drawings please contact Chentronics® at TEL: +1.607.334.5531 or info@chentronics.com.

Figure 3 illustrates the sample scope of supply listed below.

Equipment	Part Number
Retract	08000027
Exciter	07000124
Exciter Power Cable	C07000124
Extension Rod	02000400
Igniter	02000500

8.0 Warranty Instructions

For warranty related inquiries please contact Chentronics® at TEL: +1.607.334.5531 or info@chentronics.com

9.0 Technical Support

For technical support related inquiries beyond the scope of this Installation and Operation Manual, please contact Chentronics® at TEL: +1.607.334.5531 or info@chentronics.com