


2024/2025

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SIEMENS COMBUSTION CONTROLS

Flame Safeguard & Combustion

SIEMENS

Building Controls & Field Devices

TESTO

Combustion Analyzers

TOSIBOX

VPN Solutions

UNITY MANUFACTURING

Enclosures and backplates

VYKON BY TRIDIUM

Building Automation & Security Software

VAISALA, INC.

Sensing Devices

VERIS INDUSTRIES

Energy Management Solutions

VICONICS

Building Controls

YASKAWA

Variable Frequency Drives

YORK INTERNATIONAL

Chiller and Service Parts

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ABOUT THIS BOOK

Introducing this year's Cochrane Supply Burner Book—your comprehensive reference guide for selecting and understanding controls for commercial and industrial burner boiler applications. This guide offers a detailed overview of essential products, including Honeywell, Siemens, Fireye, ASCO, and more, covering flame safeguard relays, gas valves, pressure sensors, and combustion control systems. Whether you're specifying equipment for a new project or troubleshooting an existing system, this book provides the necessary product details and application insights. Explore critical components like gas valves, flame sensors, emission analyzers, and advanced control solutions, all curated to help optimize your burner boiler systems for efficiency, safety, and reliability.

WE CAN HELP!

THE BURNER PROS

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AVAILABLE TRAINING

CSD-1 Certification Training

Students will spend one day preparing for and taking the CSD-1 Certification exam. Instruction will be provided by Phil Forner of MIACCA during this NATE Certified training session. Students that pass the CSD-1 Certification exam will receive a certificate.



SCAN ME

Flame Safeguard / Combustion Theory

This class consists of a one-day session covering applications and troubleshooting. Topics covered include: Flame Sensors, Primary Controls, and Programming Controls



SCAN ME

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PRIMARY FSG RELAYS

RM7890 Primary Controls

Replaces RA890F,G,H. Requires Q7800 Subbase & R78 Amplifiers



RM7890A1015	Automatic Primary Relay
RM7890B1014	Automatic Primary Relay, Shutter Drive
RM7890B1048	Enhanced Primary with VPS**

RM7895 Primary Controls

Replaces R7795A,B—R4795A,D. Requires Q7800 Subbase, R78A Amplifiers & ST Purge Cards

RM7895A1014	Intermittent Primary Relay
RM7895B1013	Intermittent Primary Relay with Air Flow Switch Check
RM7895C1012	Interrupted Primary Relay
RM7898A1000	Enhanced Primary with VPS**

RM7838A and B Semi-Automatic Primary Controls

Replaces R4138. Requires Q7800 Subbase, R78 Amplifiers & ST Purge Cards

RM7838A1014	Semi-Automatic Primary Relay with Display
RM7838B1013	Enhanced Primary Relay with Display

PROGRAMMER FSG RELAYS

RM7840 Programmer FSG Relay

Replaces R4140. Requires Q7800 Subbase, R78 Amplifiers, ST Purge Cards



RM7840E1016	Relay Module, 4-Wire Modulation, Proven High/Low Fire, ESP*
RM7840G1014	Relay Module, 4-Wire Modulation, Proven Low Fire
RM7840L1018	Relay Module, 4-Wire Modulation, Proven High/Low Fire
RM7840M1017	Relay Module, On/Off, Proven Low Fire
RM7840L1075	Enhanced Programmer with Purge & VPS**

RM7800 Programmer FSG Relay

Replaces BC7000 (includes keypad). Requires Q7800 Subbase, R78 Amplifiers, ST Purge Cards

RM7800E1010	Relay Module with Keypad, 4-Wire Modulation, Proven High/Low Fire, ESP*
RM7800G1018	Relay Module with Keypad, 4-Wire Modulation, Proven Low Fire
RM7800L1012	Relay Module with Keypad, 4-Wire Modulation, Proven High/Low Fire
RM7800M1011	Relay Module with Keypad, On/Off, Proven High/Low Fire
RM7800L1087	Enhanced Programmer with Keypad & VPS**

*ESP = Energy Savings Prepurge **VPS = Valve Proving System



PLUG-IN PURGE TIMER CARD

Part No.	Prepurge Timing
ST7800A1005	2 seconds
ST7800A1013	7 seconds
ST7800A1021	10 seconds
ST7800A1039	30 seconds
ST7800A1047	40 seconds
ST7800A1054	60 seconds
ST7800A1062	90 seconds
ST7800A1070	2.5 minutes
ST7800A1088	4.0 minutes
ST7800A1096	6.0 minutes
ST7800A1104	9.0 minutes
ST7800A1112	12.0 minutes
ST7800A1120	15.0 minutes
ST7800A1138	22.0 minutes
ST7800A1146	30.0 minutes



Wiring Subbase

Use with RM7800, RM7840, RM7895, RM7838 Relay Modules

Part No.	Description
Q7800A1005	Panel Mount
Q7800B1003	Wall Mount

S7800A2142 Keyboard Display Module

Allows for programming the VPS and post purge. Provides current system status and first-out annunciation and system diagnosis using a five-row by 64-column readout. The KDM is part of the 7800 series of microprocessor-based burner controls for gas/oil/coal or combination fuel single burner applications.



Electrical Ratings:

- Voltage and Frequency: 13 Vdc peak full wave rectified (+20%/-15%).
- Power Dissipation: 7W maximum.
- VA consumption: 2 VA maximum.

Environmental Ratings:

- Operating Temperature: 0°F (-18°C) to +140°F (+60°C).
- Storage Temperature: -22°F (-30°C) to +158°F (+70°C).
- Humidity: 85% relative humidity continuous, noncondensing.
- Vibration: 0.5G environment

Terminal Ratings:

- Power: 13 Vdc peak full wave rectified. Earth Ground.

FLAME SIGNAL AMPLIFIERS

Part No.	Description
R7847A1025	Green, Rectification, 0.8 to 1 Second Response Time
R7847A1033	Green, Rectification, 2 to 3 Second Response Time
R7847B1023	Green, Rectification, Dynamic AMPLI-CHECK™ 0.8 to 1 Second Response Time
R7847B1031	Green, Rectification, Dynamic AMPLI-CHECK™ 2 to 3 Second Response Time
R7847C1005	Purple, Ultraviolet, use with Purple-Peeper, Dynamic AMPLI-CHECK™ 2 to 3 Second Response Time
R7848A1008	Red, Infrared, 2 to 3 Second Response Time
R7849A1015	Purple, Ultraviolet, use with Mini-Peeper, 0.8 to 1.0 Second Response Time
R7849A1023	Purple, Ultraviolet, use with Mini-Peeper, 2 to 3 Second Response Time
R7849B1013	Purple, Ultraviolet, use with Mini-Peeper, Dynamic AMPLI-CHECK™ 0.8 to 1 Second Response Time
R7849B1021	Purple, Ultraviolet, use with Mini-Peeper, 2 to 3 Second Response Time, Circuitry Self-Test
R7851B1000	White, Ultraviolet, Dynamic AMPLI-CHECK™ 2 to 3 Second Response Time
R7852A1001	Red /White, Infrared, 2 to 3 Second Response Time
R7861A1026	Purple, Ultraviolet, 2 to 3 Second Response Time Used With C7061 Detector
R7886A1034	Blue, Ultraviolet, Dynamic SELF-CHECK, 0.8 to 1 Second Response Time, Adjustable Sensitivity
R7886A1001	Blue, Ultraviolet, Dynamic SELF-CHECK, 2 to 4 Second Response Time, Adjustable Sensitivity



PILOT ASSEMBLIES

Rectification flame sensing can be used with Honeywell and Fireye amplifiers.

Flame Rectifiers

Flame Rod & Gas Pilot, for intermittent or interrupted ignition



Q179A1035

Part No.	Description
Q179A1001	I Tip Style
Q179A1035	45° RH Tip Style
Q179A1050	T Tip Style
Q179A1092	45° T Tip Style

FRS Flame Rods

Standard Flame Rod, cut to length, heat before bending

Part No.	Description
FRS4-12	Flame Rod, 1/4" NPT Mount 12" Rod
FRS4-6	Flame Rod, 1/4" NPT Mount 6" Rod

IGNITION TRANSFORMERS

Part No.	Description
AO6-SA6	120 VAC Primary, 6000 VAC Secondary, 175 VA, 60 Hz, 1 Phase
A10-LA2	120 VAC Primary, 10000 VAC Secondary, 250 VA, 60 Hz
Q624A1014	120 VAC, 50/60 Hz

INFRARED FLAME SENSORS

Part No.	Description
C7915A1028	3/4" NPT Mount, 48" Lead Wire with Lead Sulfide Photocell, -20 to 125°

ULTRAVIOLET FLAME SENSORS

Part No.	Description
C7027A1023	MiniPeeper, 1/2" Mount, 8' Lead Wire Greenfield, 0 to 215°
C7027A1031	MiniPeeper, 1/2" Mount, 8' Lead Wire, -40 to 215°
C7027A1049	MiniPeeper, 1/2" Mount, 8' Lead Wire, 1/2" NPT Conduit, 0 to 215°
C7027A1064	MiniPeeper, 1/2" Mount, 24' Lead Wire, 1/2" NPT Conduit, -40 to 215°
C7027A1072	MiniPeeper, 1/2" Mount, 8' Lead Wire, 1/2" NPT Conduit, -40 to 215°
C7035A1023	1" Mount, 6' Lead Wire, Replaceable UV Tube, 0 to 250°
C7012E1112	1" NPT Mount, Dynamic Self-Check, 120V
C7012E1146	3/4" NPT Mount, Dynamic Self-Check, 208V
C7961E1014	1" NPT Mount, Dynamic Self-Check, 120V, Low Temp, -40 to 175°
C7061A1053	1" NPT Mount, Dynamic Self-Check, 120V, Low Temp, -40 to 175°



C7961E1014

INTEGRATED PRESSURE SWITCHES

Can be mounted on V5097 Valve

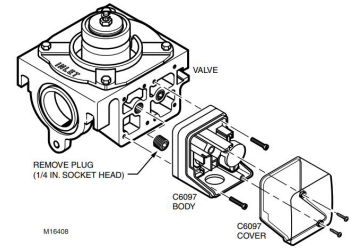
Part No.	Description
C6097A3012	3 to 21" WC, Manual Reset, NO, 1/4" NPT
C6097A3020	3 to 21" WC, Manual Reset, NO, Mounts on V5097 Valve
C6097B3028	3 to 21" WC, Manual Reset, NC, 1/4" NPT
C6097B3036	3 to 21" WC, Manual Reset, NO, Mounts on V5097 Valve
C6097A3004	.4 to 5" WC, Auto Recycle 1/4" NPT, Use with VPS



C6097A3012

V5097A/B GAS VALVES

Part No.	Description
V5097A1004/U	Small Body Low Pressure Integrated Valve; 3/4", 1", 1-1/4", 2"
V5097A1012/U	Large Body Low Pressure Integrated Valve; 2", 2-1/2", 3"
V5097B1002/U	Small Body Low Pressure Integrated Valve; 3/4", 1", 1-1/4", 2"
V5097B1010/U	Large Body Low Pressure Integrated Valve; 2", 2-1/2", 3"



SOLENOID GAS VALVES

The normally-closed gas valves are used for pilot or main gas shutoff applications.

Normally-Closed Vent Valves

Part No.	Description
V4295A1015	1/2" NPT, 2 psi
V4295A1023	3/4" NPT, 2 psi
V4295A1031	1" NPT, 2 psi
V4295A1049	1-1/4" NPT, 2 psi
V4295A1056	1-1/2" NPT, 2 psi
V4295A1064	2" NPT, 2 psi

Normally-Open Vent Valves

Part No.	Description
V4295S1005	3/4" NPT, 2 psi
V4295S1013	1" NPT, 2 psi
V4295S1021	1-1/4" NPT, 2 psi



V4295S1005

DIAPHRAGM GAS VALVES

24V	Pipe NPT	Pressure
V88A1659	3/4"	1/2 psi
V88A1618	1"	1/2 psi
V88A1626	1-1/4"	1/2 psi
V88A1634	1-1/2"	1/2 psi
V88A1709	2"	1 psi
V88A1717	2-1/2"	1 psi

120V	Pipe NPT	Pressure
V48A2151	3/4"	1/2 psi
V48A2169	1"	1/2 psi
V48A2177	1-1/4"	1/2 psi
V48A2185	1-1/2"	1/2 psi
V48A2243	2"	1 psi



V48A2151

REPLACEMENT PARTS

Gas Valve Actuators

Part No.	Description
V4055A1064	120V, 5 psi, 26 Sec
V4055A1098	120V, 5 psi, 13 Sec
V4055D1019	120V, 5 psi, 13 Sec used w/proof of closure
V4062A1131	120V, 5 psi, 13 Sec Hi-Lo-OFF

Pilot Valves

Part No.	Description
V4046	120v - 1/8", 1/4" or 3/8"
V8046	24v - 1/8", 1/4" or 3/8"

Main Gas Valves

Part No.	Description
V5055	1"
V5055	1-1/4"
V5055	1-1/2"
V5055	2-1/2"
V5055	3"

FLAME SCANNERS



QRA75



QRA4U



QRA2(1)



QRA10

Part No.	Description
QRA2(1) UV Scanner	U.V. side-viewing detector with flange and clamp used with LFL Burner Controls
QRA4U UV Scanner	QRA4U U.V. detector with NPSM thread conn. for LFL Burner Controls
QRA10 UV Scanner	U.V. detector with die cast aluminum housing normal sensor tube
QRA75 UV Scanner	U.V. self scanner for LMV



LME7 BURNER CONTROL

The burner control LME7 is a microprocessor-based unit with matching system components for the control and supervision of forced draft burners of medium to high capacity. Ease of installation, programming and commissioning are incorporated into a reliable, field proven control.



SQN7 CONTROL MOTOR

Designed to drive gas and air dampers for burners with small to medium capacities, the SQN7 Control Motor provides line voltage, floating control and optional feedback for low torque applications. Features include: line voltage floating or proportional control, optional feedback potentiometer, up to 22 in-lb torque, and an auxiliary switch.



LDU11 VALVE LEAK TEST SYSTEM

The Siemens LDU11 gas valve leak test control checks for leakage through the shutoff valves prior to burner start-up and/or immediately after burner shutdown. The cost-effective, easy to install LDU11 adds a substantial degree of safety to any combustion system.



LFL FLAME SAFEGUARD

With an incomparable record for safety and reliability, the globally approved LFL Flame Safeguard continues to be one of the most widely used flame safeguards around the world. Siemens LFL burner controls provide burner sequencing and flame monitoring for the supervision of individual gas, oil, or dual fueled burners.



RWF50 TEMPERATURE CONTROLLER

The RWF50 is the perfect solution for controlling the temperature or pressure in oil-fired or gas-fired heating plants. Use the RWF50 either as a 3-position controller without angular positioning feedback, or as a continuous controller with analog output depending on the version. An external switch can be used to change to a 2-position controller for controlling 2-stage burners. The integrated thermostat function switches the burner on and off.

SIEMENS LMV3

The LMV3 Linkageless Burner Management System sets an industry standard for cost-effective single or dual fuel burner controls. A fully-integrated linkageless flame safeguard system, the LMV3 provides improved performance, efficiency, and reliability. Effortless commissioning, programming, and installation allows for maximum ROI.



- Single and dual fuel versions
- Gas valve leak test on startup, shutdown, both or neither
- Proof of closure switch monitoring
- Programmable overlap of the pilot and main gas valves
- Programmable stops to pause startup sequence in: pre-purge, pre-ignition, pilot ignition, and main flame
- Adjustable purge timing up to 60 minutes

SIEMENS LMV5

The LMV5 Linkageless Burner Management System is a fully-integrated system that is not only easy to install and operate, but also provides improved burner performance and efficiency while ensuring safe operation.



- Fuel to air ratio curve can easily be adjusted at any point in the firing rate
- 15 programmable points, with 4 independent positions, including pre-purge, ignition, post-purge and standby
- User friendly menu system for fast programming, commissioning
- Worldwide approvals and technical support

ACTUATORS AND VALVES

Designed to install faster, operate safer, and deliver proven reliability, Siemens VG Series Single and Double Gas Valves combine with SKP Series Electro-Hydraulic Actuators to provide gas safety shutoff, constant pressure regulation, and air/gas ratio control.



Providing gas safety shutoff control for industrial and commercial burner applications, all SKP Actuators deliver reliable and safe on-off control:

- Proof-of-Closure (POC) Over Travel to ensure safety
- Modular design and quick connect wire terminals for fast installations
- Extremely low 13.5 VA power consumption

VG Series Gas Valves are available in the following sizes:

- 1-1/2 to 3" threaded double valves
- 4 to 6" flanged double valves
- 1/2 to 3" threaded single valves

SKP Actuators	Description
SKP15.011U1	On/Off Safety Shut Off Valve Actuator
SKP25.011U1	On/Off Safety Shut Off Valve Actuator w/ (SPDT) Proof Of Closure Switch

VG Series Gas Valves	Description
VGG10.254U	1" Gas Valve Body
VGG10.404U	1-1/2" Gas Valve Body
VGG10.504U	2" Gas Valve Body
VGG10.654U	2-1/2" Gas Valve Body
VGG10.804U	3" Gas Valve Body

QP PRESSURE SWITCHES

The QP Pressure Switch is available in a variety of pressure ranges and can be easily automatically or manually reset.

Part No.	Description
QPH31.050M00	High Pressure Switch 2-20" wc Manual Reset
QPH31.150M00	High Pressure Switch 10-60" wc Manual Reset
QPH31.050A00	High Pressure Switch 2-20" wc Auto Reset

Part No.	Description
QPL31.010M00	Low Pressure Switch 1/2-4" wc Manual Reset
QPL31.050M00	Low Pressure Switch 1-20" wc Manual Reset
QPL31.010A00	Low Pressure Switch 1/2-4" wc Auto Reset

PRIMARY FSG RELAYS

M-Series II

Replaces UVM & TFM



M-Series II Chassis

Part No.	Description
MC120	120 VAC, Standard
MC120R	120 VAC with Remote Reset Capability

M-Series II Programmer Modules

Part No.	Description
MP100	Relight Function
MP230	Selectable Recycle/Non-Recycle Function, Trial Flame Ignition and Purge Timing

M-Series II Amplifier Modules

Part No.	Description
MAUV1	Ultraviolet, 2-4 Second Response Time
MAUV1T	Ultraviolet, 0.8 Second Response Time
MART1	Flame Rod, 2-4 Second Response Time
MART1T	Flame Rod, 0.8 Second Response Time

MicroM Series

Replaces UVM, TFM, M-Series II

MicroM Series



MicroM Series Chassis

Part No.	Description
MEC120	VAC with Standard Plug-in Board

MicroM Series Programmer Modules

Part No.	Description
MEP100	Relight Operation, 10 Second, PTFI
MEP230	Selectable Purge, PTFI Timing, Recycle or Non-Recycle Post Purge, Prove Air Open at Start

MicroM Series Amplifier Modules

Part No.	Description
MEUV1	Ultraviolet, 0.8 Second Response Time
MEUV4	Ultraviolet, 3 Second Response Time
MERT1	Flame Rod, Photocell, 0.8 Second Response Time
MERT4	Flame Rod, Photocell, 3 Second Response Time



61-3060

Subbases for Both Micro M and M-Series II

Part No.	Description
61-3060	Surface Mounting, Closed
61-5042	Cabinet Mounting, Open

PRIMARY FSG RELAY CROSS-REFERENCE

MicroM Replacement from old M-Series and M-Series II

M-Series	M-Series II			MicroM Series		
	Assembly	Chassis	Amplifier	Programmer	Chassis	Amplifier
UVMID	MC120	MAUV1T	MP100	MEC120	MEUV1	MEP100
UVM1F	MC120	MAUV1	MP100	MEC120	MEUV4	MEP100
TFM1D	MC120	MART1T	MP100	MEC120	MERT1	MEP100
TFM1F	MC120	MART1	MP100	MEC120	MEUT4	MEP100
UVM2	MC120	MAUV1	MP230	MEC120	MEUV1	MEP230
TFM2	MC120	MART1	MP230	MEC120	MERT4	MEP230
UVM3	MC120	MAUV1	MP230	MEC120	MEUV4	MEP230
TFM3	MC120	MART1	MP230	MEC120	MERT4	MEP230

PROGRAMMER FSG RELAYS

Flame Monitor® Control



E110



ED510



EP160



EIR1

Flame Monitor Chassis

Part No.	Description
E110	Flame Monitor Control, Standard, w/Dust Cover & Screw

Flame Monitor Display

Part No.	Description
ED510	Display Module, LCD Display w/Keypad, 2 Line x 16 Characters, For Programmers and Primary Relays

Flame Monitor Programmer Modules

Part No.	Description
EP160	30 Second Purge, 10 & 15 Second Trial for Ignition, 4 Second Response Time, Non-Recycle, Modulation
EP260	30 Second Purge, 10 & 15 Second Trial for Ignition, 4 Second Response Time, Recycle, Modulation
EP380	30 Second Purge, 5 & 10 Second Trial for Ignition, 4 Second Response Time, Recycle, On-Off
EP390	90 Second Purge, 5 & 10 Second Trial for Ignition, 4 Second Response Time, Recycle, On-Off

Flame Monitor Amplifier Modules

Part No.	Description
EUV1	Ultraviolet Amplifiers
E1R1	Infrared Amplifier (High Sensitivity)
ERT1	Flame Rod Amplifier

Flame Monitor D & E Series Subbases

Part No.	Description
60-1386-2	Closed Base
60-1466-2	Open Base



48PT2-1007

INFRARED FLAME SENSORS

Fireye Part Number	Description
48PT2-1003	1/2" NPT Straight Mount, 8' Lead Wire
48PT2-1007	1/2" NPT Straight Mount, 4' Lead Wire
48PT2-9003	1/2" NPT Angle Mount, 8' Lead Wire
48PT2-9007	1/2" NPT Angle Mount, 4' Lead Wire

*Older Style: P-Series Controls (e.g. 28FJ8, 29RF5)



45UV5-1009

ULTRAVIOLET FLAME SENSORS

Fireye Part Number	Description
UV1A6	1/2" NPT Mount, 6' Lead Wire, Non-Replaceable Tube
UV1AL-6	1/2" NPT Mount, 6' Lead Wire, Front View
UV1A-3	1/2" NPT Mount, 3' Lead Wire
UV1AL-3	1/2" NPT Mount, 3' Lead Wire, Front View
UV2	3/8" NPT Mount, 3' Lead Wire, Non-Replaceable Tube
45UV5-1009	1" NPT Mount, 8' Lead Wire, Self-Checking, Explosion Proof



FIREYE INTEGRATED SCANNERS

Simplicity 65UV5

The Fireye 65UV5 flame scanner is a microprocessor-based flame scanner utilizing an ultraviolet tube-type sensor and an electro-mechanical self-checking shutter mechanism. The Fireye 65UV5 flame scanner incorporates an internal flame relay with a fixed ON/OFF threshold thereby eliminating the need for an external flame amplifier.



65UV5

Phoenix 85UVF

The Fireye Phoenix type 85UVF/IRF flame scanners are microprocessor-based devices utilizing a solid state flame detection sensor. The Phoenix flame scanners incorporate an internal flame relay with automatically set ON/OFF thresholds, thereby eliminating the need for a remote flame amplifier or flame switch.



85UVF

InSight 95IR/95UV/95DS

The Fireye InSight Type 95IR, 95UV, and 95DS flame scanners are microprocessor-based flame scanners utilizing solid state infrared (IR), ultraviolet (UV) or dual (IR and UV) sensors. The Fireye InSight Type 95 flame scanners incorporate an internal flame relay with adjustable ON/OFF thresholds, thereby eliminating the need for a remote flame amplifier.

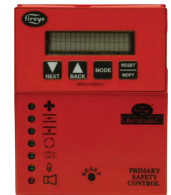


InSight

FIREYE BURNERLOGIX

Note: The Phoenix QDWR models with electrical quick-disconnect have replaced the original WR models equipped with 10 feet of captive cable. The QDWR models (with 59-546-X cables) are also suitable for use in Class I Division 2 hazardous areas, thereby eliminating the need for the "EXWR" models.

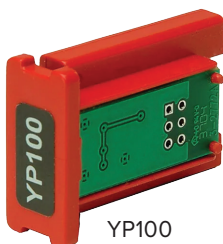
Chassis/Amplifier	120 VAC, 50/60 Hz YB110UV, YB110UVSC, YB110IR, YB110FR, YB110DC, ZB110 230 VAC, 50/60 Hz YB230UV, YB230UVSC, YB230IR
Programmer Module	YP100, YP102, YP200, YP202, YP300, YP302, YP113, YP138, YP118
Display Module	BLV512 - Vacuum Fluorescent, BLL510 - Liquid Crystal
Wiring Base	60-2814-1 Open Bottom, Cabinet Mount 60-2812-1 Closed Bottom, Conduit Knockout
Wiring Base	60-2810-1 Pre-Wired, 4-Foot, Color-Coded



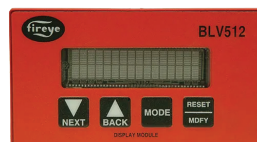
YB110 Chassis
w/ Optional
BLV512 Display



ZB110 Chassis
W/ Optional
BLL510 Display
and Programmer



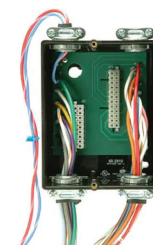
YP100



BLV512



60-2814-1



60-2810-1

FIREYE NEXUS - Integrated Flame Safeguard Capabilities!

NXF4000

The NXF4000 is an electronic parallel positioning and O2 trim combustion control system built into a compact, flexible user-configurable package. This controller will support sequencing/lead lag and up to 10 servo motors.

NX6300

The NX6300 is designed to handle a variety of burner applications. It incorporates many features from the trusted Fireye NX6100 controller, ensuring reliability and performance. Auxiliary devices include servos, flame detectors, burner and boiler sensors, as well as Oxygen trim system components.

PPC6000

The Fireye PPC6000 is a state of the art stand-alone parallel positioning system for all types of liquid or gaseous fuel fired combustion systems. When combined with a Fireye flame safeguard system such as the Fireye BurnerLogix control, the PPC6000 offers the most compact and advanced parallel positioning system available.

PPC4000

The PPC4000 is an electronic parallel positioning and O2 trim combustion control system built into a compact, flexible user-configurable package. This controller will support sequencing/lead lag and up to 10 servo motors.

NXD410 Keypad Display

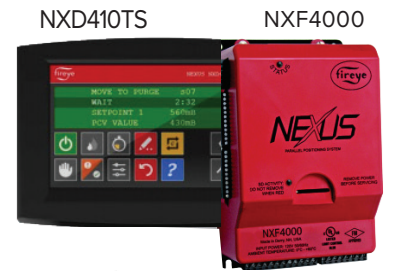
The NXD410 is a full text-based LCD display. Fifteen keys, including fast-access, one-push keys, provide information at a glance.

Servo Motors

Three servo motor sizes are available for the PPC4000. High accuracy 0.1 degree over 90 degrees resolution.

O2 Probe

Fireye's oxygen probe provides stack temperature and oxygen measurement. Available in three lengths with a low cost replaceable sensor. Oxygen trim automatically and continuously compensates for all the variables that affect efficient combustion.



NX6300



PPC6000



PPC4000



FX04-1, FX20-1, FX50-1
Servo Motors



NXCESO2



VERIS WET DIFFERENTIAL PRESSURE SENSORS

Part Number	Description
PWLX04S	12 to 30 VDC/24 VAC Input 4 to 20 mA/0 to 5 V/0 to 10 V Output Wet Media Differential Pressure Transducer with LCD Display, 0 to 100 psig
PW2LX04S	12 to 24 VDC Input 4 to 20 mA Output Wet Media Differential Pressure Transducer with LCD Display, 0 to 100 psig
PWRLX04S006A	15 to 30 VDC/24 VAC Input 4 to 20 mA/0 to 5 V/0 to 10 V Output Wet Media Differential Pressure Remote Transducer with 6 ft Armored Cable, 0 to 100 psig
PWXX04S	12 to 30 VDC/24 VAC Input 4 to 20 mA/0 to 5 V/0 to 10 V Output Wet Media Differential Pressure Transducer, 0 to 100 psig



PWRLX04S006A



ASCO HYDRAMOTOR GAS VALVES

The normally-closed aluminum body valves provide main line gas shutoff and control for boilers, furnaces and ovens. Also with flanged cast iron body for pipe sizes up to 6".

Actuators

AHD Series Actuators have been replaced with the E Series. The valve body must be changed as the new style will not fit on the old body style.

Part No.	Description
AH2E102A4	On/Off Slow Opening
AH2E112A4	On/Off Fast Opening
AH2E112S	On/Off, Fast Open, Proof of Closure
AH4E112S4	Hi/Low/Off, Fast Open, Proof of Closure
AH4E112A4	Hi/Low/Off, Fast Open

Valve Body

Standard for On-Off Applications

Part No.	Description
V710EBS	3/4"
V710FBS	1"
V710HBS	1-1/2"
V710JBS	2"
V710KBS	2-1/2"
V710LBS	3"



AH/V710

Vent Valves

2-way, Normally Open, 120V

Part No.	Description
8215G033	3/4"
8215C053	1"
8215C063	1-1/4"
8215C073	1-1/2"
8215C083	2"



8215G033

ASCO CONFIGURABLE SERIES 159 GAS VALVES

Meeting stringent approvals

- Meets UL 429, CSA 6.5 C/I, and FM 7400

High flow rates & low pressure drop

- Highest flow/heat output ratings in the industry
- Reduced pressure drop across all valve sizes

Increased reliability

- Integral valve strainer decreases downtime by 20%
- High close-off pressure of 75 psi (5 bar) mitigates damage to fuel train and field instrumentation

Low ambient operating temperature range

- New valves can be installed in frigid environments (as low as -40 °F/°C locations)

Compact footprint and modular design

- Compact valve design and monoblock option significantly reduces fuel train length— this will reduce the spatial footprint and make it suitable for space restrictive and retrofit applications
- Modular design allows customers the flexibility to configure gas trains to fit their exact needs
- Various options are available (visual indication, proof of closure, seal type, enclosure integrity and others)
- Flexible field mounting – multipoise design allows customers to install our valves in many orientations
- Offered with NPT/ISO vent port and pipe taps

Reduce cost of ownership— installation time and effort

- Customers can utilize flange adapters to simplify mounting (no pipe unions required)
- End connections simplify valve removal
- Increase labor savings by 50% - only 1 person is needed to install
- Up to 25% less weight than competitors

Pipe SIZE in (mm)	Adapter - Hardware Kit			
	NPT Threaded	ISO Threaded (Rp and G combination)	ANSI Flanged	ISO Flanged
3/4 (20)	M200687	M200688	-	-
1 (25)	M200685	M200686	-	-
1 1/4 (32)	M200683	M200684	-	-
1 1/2 (40)	M200681	M200682	-	-
2 (50)	M200679	M200680	-	-
2 (High Flow) (50)	M200836	M200694	M200872	M200875
2 1/2 (65)	M200835	M200692	M200873	M200876
3 (80)	M200834	M200690	M200874	M200877



ASCO SERIES 159 MOTORIZED ACTUATOR

Base Catalog Number	Actuator Type	Mechanical Options	Constr. Ref.
Watertight Slow Opening (18 Sec)			
P159A110__X0 ___	On/Off Actuator	None	1
P159A110__X1 ___	On/Off Actuator	Damper Shaft With Arm	2
P159A110__X2 ___	On/Off Actuator	Damper Shaft	3
P159A210__X0 ___	High/Low/Off Actuator	None	1
P159A210__X1 ___	High/Low/Off Actuator	Damper Shaft With Arm	2
P159A210__X2 ___	High/Low/Off Actuator	Damper Shaft	3
General Purpose Slow Opening (18 Sec)			
P159A120__X0 ___	On/Off Actuator	None	1
P159A120__X1 ___	On/Off Actuator	Damper Shaft With Arm	2
P159A120__X2 ___	On/Off Actuator	Damper Shaft	3
P159A220__X0 ___	High/Low/Off Actuator	None	1
P159A220__X1 ___	High/Low/Off Actuator	Damper Shaft With Arm	2
P159A220__X2 ___	High/Low/Off Actuator	Damper Shaft	3
Watertight Fast Opening (9 Sec)			
P159A111__X0 ___	On/Off Actuator	None	1
P159A111__X1 ___	On/Off Actuator	Damper Shaft With Arm	2
P159A111__X2 ___	On/Off Actuator	Damper Shaft	3
P159A211__X0 ___	High/Low/Off Actuator	None	1
P159A211__X1 ___	High/Low/Off Actuator	Damper Shaft With Arm	2
P159A211__X2 ___	High/Low/Off Actuator	Damper Shaft	3
General Purpose Fast Opening (9 Sec)			
P159A121__X0 ___	On/Off Actuator	None	1
P159A121__X1 ___	On/Off Actuator	Damper Shaft With Arm	2
P159A121__X2 ___	On/Off Actuator	Damper Shaft	3
P159A221__X0 ___	High/Low/Off Actuator	None	1
P159A221__X1 ___	High/Low/Off Actuator	Damper Shaft With Arm	2
P159A221__X2 ___	High/Low/Off Actuator	Damper Shaft	3

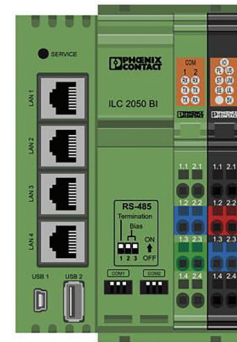


PHOENIX CONTACT ILC 2050 BI

The ILC 2050 BI is a Niagara-based controller that is ideal for mission-critical applications, including boiler rooms. It is compatible with the existing Niagara workbench used to program any Niagara controller. Its I/O is easily discoverable within the Niagara workbench with free rivers specific to this controller.

The ILC 2050 BI includes the following features:

- Industrially-graded hardware
 - UL 508 certification
 - Shock-and-vibration testing
 - I/O port-to-port isolation
- Dense I/O expandability in a small footprint
- Modularity of I/O for mixing and matching signals as needed
- Time-optimized engineering using the Niagara 4 framework
- Support for all the main communication protocols used in building infrastructure automation
- Planning, engineering, and visualization in the Java-based Niagara 4 framework
- Easy extension of the Niagara 4 framework with self-programmed functions
- Four LAN, two USB, and two RS-485 interfaces are integrated
- Safe and reliable intelligent safety solutions protect personnel and machinery, and ensure high system availability



PWLX04S

YASKAWA MATRIX DRIVE

The HV600 variable-speed drive (3-250 HP) is engineered for use in HVAC building automation applications requiring reliable motor control. The HV600 features your choice of IP20/UL Type 1, IP55/UL Type 12, or IP20/Protected Chassis protection classes. Every HV600 comes with HVAC application-specific software presets, a Hand-Off-Auto LCD keypad, a high-visibility Status Ring for quick visual indication of drive status, and a real-time clock for system accuracy.

- Simple steps for efficient commissioning
- DriveWizard® Mobile app for drive management on smart mobile devices
- Safe programming without main three-phase power
- Timer controls for starting, stopping, and speed changes
- Built-in building automation protocols
- Emergency Override for occupant safety in fire events

The Z1000U Matrix Drive incorporates matrix technology to directly convert input AC voltage to output AC voltage. The drive is ideally suited for HVAC applications providing ultra-low harmonic distortion, energy savings, and serviceability in a space-saving design. The Z1000U HVAC Matrix Drive was honored with the Product of the Year Award by Consulting-Specifying Engineer Magazine.



HV600



Z1000U

Next-Gen Testo 300 Pro - Commercial Combustion Analyzer

300 Combustion Analyzer

The user-friendly and highly efficient testo 300 with smart-touch technology has numerous advantages, including but not limited to:

FEATURES:

- Operation via smart-touch - The smart-touch display responds immediately without any delay, allowing intuitive operation.
- Emailing of reports - The testo 300 enables the convenient creation of documentation directly on site, and the dictation function even saves you typing in the process. Send reports immediately via Wi-Fi.
- Keep an eye on all measuring values - You can see the system's parameters right away on the large 5" HD display.
- Get the results faster - Clearly structured menus for all relevant measurements are already stored in the measuring instrument and guide you efficiently through the application.
- Completely worry-free - It has quality sensor technology, measures high CO values up to 30,000ppm and comes standard with the longest warranty in the industry.



SEITRON AMERICAS EMISSIONS ANALYZERS

S1500-P Portable Combustion Analyzer with Built-In Printer

S1500-P Analyzer with O₂, CO, CO₂, Efficiency, Excess Air, Draft, Pressure, Temp, Rechargeable Battery and AC Plug, 12" (300mm) Probe with 5' (1.5m) Dual Hose, ABS Case, Calibration Certificate, Operating Manual, Cheat Sheet, Water Trap, Paper Roll, 2000 Internal Data Storage, PC Software, Bluetooth™ Connectivity, Differential Pressure Manometer Kit (1 Hose), Automatic Outdoor Air Temperature Saving for ALL 90%+ Systems and Condensing Systems for TRUE Efficiency Calculations + iOS and Android App Included.



S1500-P

S4500-3 Portable Commercial/Industrial Emissions Analyzer

S4500-3 Analyzer with O₂, CO, Standard NO/NO_x Gas Sensors, Upgradable to 4th Gas Sensor. Efficiency, Excess Air, Draft, Pressure, Temp, Rechargeable Battery and AC Plug, 12" (300mm) Probe with 5' (1.5m) Dual hose, ABS Case, Calibration Certificate, Operating Manual, Cheat Sheet, Water Trap, Paper Roll, 2000 Internal Data Storage, PC Software, Bluetooth™ Connectivity, Differential Pressure Manometer Kit (1 Hose), Automatic Outdoor Air Temperature Saving for ALL 90%+ Systems and Condensing Systems for TRUE Efficiency Calculations + iOS and Android App Included.



S4500-3

Novo Portable Combustion Analyzer

The Novo Combustion Analyzer is designed to make combustion analysis quick and intuitive. Robust, reliable, precise. The Novo inherits the tradition of the Seitron analyzers and joins it with renewed software and hardware in order to offer a device easier to use. Main Features: With or Without Build-In Printer, 7" Touch Display for Easy Menu Navigation, Up to 4 Gas Sensors Including Low NO_x, Long-Life O₂ Sensor and High-Range CO With Dilution Pump, Dedicated Probe With One Simple Connection, Integrated Water Trap with LED Backlight for Easy Maintenance, Simultaneous Measurement of Gas and Combustion Results, Dual Range Sensor Technology, and More.



Novo Series

DUNGS PRESSURE SWITCHES



FGPS-GAO-002

GAO-A405 2-20 WC 217-092A
GAO-A4-4-5 2-20 WC PIPE MT GAS SW NEMA4
HI OR LOW AUTO RESET UL CSA FM

FGPS-GAO-1260

GAO-A4-4-6 12-60 WC 217-093A
GAO-A4-4-6 12-60 WC PIPE MT GAS SW NEMA4
HI OR LOW AUTO RESET UL CSA FM

FGPS-GML-0120

GML-A4-4-4 1-20 WC 217-340A
GML-A4-4-4 1-20 WC PIPE MT GAS SW NEMA4
LOW MAN RESET UL CSA FM

FGPS-GMH-0120

GMH-A4-4-4 1-20 WC 217-326A
GMH-A4-4-4 1-20 WC PIPE MT GAS SW NEMA4
HIGH MAN RESET UL CSA FM

FGPS-GMH-1260

GMH-A4-4-6 12-60 WC 217-327A
GMH-A4-4-6 12-60 WC PIPE MT GAS SW NEMA4
HIGH MAN RESET UL CSA FM

FGPS-GML-1260

GML-A4-4-6 12-60 WC 217-341A G
ML-A4-4-6 12-60 WC PIPE MT GAS SW NEMA4



ANTUNES SINGLE GAS PRESSURE SWITCHES

Maximum Pressure: 15 PSI, Ambient Temperature: -40° to 170°F



Manual Reset High Range (HGP-G)

8103116101	0.5" to 4" WC
8101111202	1" to 21" WC
8101111303	5" to 35" WC

Auto Reset High Range (RHGP-G)

8102111304	5" to 35" WC
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Manual Reset Low Range (LGP-G)

8103116202	1" to 21" WC
8103116303	5" to 30" WC

Auto Reset Low Range (RLGP-G)

8104116102	0.5" to 4" WC
8104116203	1" to 21" WC
8104116304	5" to 30" WC



HGP-G/LGP-G

ANTUNES DOUBLE GAS PRESSURE SWITCHES

Maximum Pressure: 10 PSI, Ambient Temperature: -40° to 170°F

Manual Reset	Auto Reset	High Range	Low Range
804111701	804112101	2" to 16" WC	1" to 6" WC
804111702	804112102	5" to 28" WC	1" to 6" WC
804111703	804112103	10" to 50" WC	1" to 6" WC
804111704	804112104	2" to 16" WC	2" to 14" WC
804111705	804112105	5" to 28" WC	2" to 14" WC
804111706	804112106	10" to 50" WC	2" to 14" WC



HGP-A
Replacements
still available

ANTUNES AIR DIFFERENTIAL VACUUM PRESSURE SWITCHES

Maximum Pressure: 10 PSI, Ambient Temperature: -40° to 170°F

Part No.	Description	Range
801111301B	JD-2 Blue Spring	0.07" to 1.7" WC
801111302B	JD-2 Gray Spring	0.1" to 4" WC
801111303B	JD-2 Red Spring	0.1" to 24" WC



HLGP-A

MAXITROL GAS PRESSURE REGULATORS



Lever Acting Regulators

Operating inlet pressure certified up to 2 psi, 8" wc, come with 7" to 11" wc spring



325-3L

Part No.	Pipe Size	Capacities
325-3L-44	1/2" NPT	250 CFH
325-5L-66	3/4" NPT	600 CFH
325-5L-88	1" NPT	600 CFH
325-7AL-1010	1-1/4" NPT	1,250 CFH
325-7AL-1212	1-1/2" NPT	1,250 CFH
325-9L-1212	1-1/2" NPT	2,250 CFH
325-9L-1616	2" NPT	2,250 CFH
325-11L-2020-NG02	2-1/2" NPT	4,500 CFH

Balanced Valve Regulators

Operating pressure up to 10 psi, outlet pressure 1" wc to 42" wc, comes with 3" to 6" wc



210E-1616

Part No.	Pipe Size	Capacities
210D-88	1" NPT	5,000 CFH
210D-1010	1-1/4" NPT	6,500 CFH
210D-1212	1-1/2" NPT	6,500 CFH
210E-1616	2" NPT	2,000 CFH
210G-2020	2-1/2" NPT	24,000 CFH
210G-2424	3" NPT	27,000 CFH

SELECTRA - GAS FLAME MODULATION SYSTEM

For use with direct fired burners - standard temperature adjustment range 55° to 90°F, capacities to 30,000,000 BTU/H

Series 44 System

Used in Space Heating Applications

Part No.	Description
A1044R	Amplifier (Min 40° to 80°F, Max 80° to 140°F)
T244	Selectrstat (Senses & Selects; 55° to 90°F)
TS144	Discharge Air Temp Sensor (Min 40° to 80°F, Max 80° to 140°F)



A1044R

Series 14 System

Used in Make-Up Air Applications

Part No.	Description
A1014R	Amplifier (Used with All Temperature Ranges)
TD114	Remote Temperature Selector (55° to 90°F)
TD114A	Remote Temperature Selector (80° to 130°F)
TS114	Discharge Air Temp Sensor (55° to 90°F)
TS114A	Discharge Air Temp Sensor (80° to 130°F)



A1014R

Valves and Accessories for Both Series

Part No.	Description
M611-88	1" Modulating Gas Valve
SC11-B	Signal Conditioner (4 to 20 mA to Valve)
MT1-9	Mixing Tube and Sensor (9" Length)



SC11-B

NORGAS GAS PRESSURE REGULATORS

QUICK SELECTION GUIDE

- 1) Choose regulator type by inlet PSI and SCFH capacity.
- 2) Choose spring from corresponding spring chart.



NGR02 (7" x.c. Set Point - 1" Pressure Drop)

Inlet Pressure	ORIFICE				
	1/8"	3/16"	1/4"	3/8"	1/2"
0.5	117	101	169	203	242
1	136	148	210	260	571
2	221	210	296	377	1039
3	234	257	460	468	1429
5	292	351	649	1169	1558
10	338	545	1091	1748	1740
15	390	701	1481	2104	
20	491	818	1870	2403	
30	619	1286	2571		
40	717	2260	3251		
50	805	2494	3636		
60	997	2571	4052		
80	1403	3696			
100	1675	4595			
125	1850	4812			

Green S02A used to develop table

NGR02 (Spring Chart)

Color	Outlet Range	P/N
Green	6.5"wc - 16"wc	S02A
Silver	14"wc - 1psig	S02B
Yellow/Black	26"wc - 1.5psig	S02C
Yellow	1psig - 3psig	S02D
White (HP)	2psig - 5psig	S0204E

NGR06 (7" x.c. Set Point - 1" Pressure Drop)

Inlet Pressure	ORIFICE					
	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"
1	390	1130	2338	2805	3312	4052
2	662	2065	3584	3390	5649	6273
3	857	2416	3896	4208	6701	8805
5	1130	3039	5299	5297	8961	12831
8	1442	3701	6390	6701	12234	15195
10	1558	4052	6857	7052	15506	15584
15	1948	4870	8182	8416	21569	23616
25	2649	6156	10909	12952	25650	26598
35	3273	6390	14776	16782	28273	
50	4325	6244	19455	22492	32338	
60	5206	8522	22585	26304	34117	
75	6000	9780				
100	7286	11927				
125	9402	13988				

Black S0608C used to develop table

NGR06 (Spring Chart)

Color	Outlet Range	P/N
Orange	2"wc - 4"wc	S0608A
Green	3"wc - 7"wc	S0608B
Black	5"wc - 13"wc	S0608C
Purple	7"wc - 20"wc	S0608D
Silver	19"wc - 2 psig	S0608E
Yellow	1.5 psig - 3 psig	S0608F
White	2.5 psig - 7 psig	S0608G

NGR04 (7" x.c. Set Point - 1" Pressure Drop)

Inlet Pressure	ORIFICE					
	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"
1	377	740	1013	1039	2065	2078
2	623	1140	1636	1818	3740	3896
3	805	1299	2143	2961	4948	5610
5	935	2104	4403	5000	6935	8571
8	1325	3000	5844	6429	9195	10987
10	1558	3299	6390	7052	10286	11065
15	2026	3896	8104	8571		
25	2610	4156	11610			
35	3195	4909				
50	4286	5961				
75	6234					
100	7247					
125	9399					

Gray S04B used to develop table

NGR04 (Spring Chart)

Color	Outlet Range	P/N
Brown	3"wc - 7"wc	S04A
Gray	4"wc - 13"wc	S04B
Black	9"wc - 14"wc	S04C
Blue	9"wc - 15"wc	S04D
Silver	12"wc - 20"wc	S04E
Red/Gray (HP)	13"wc - 28"wc	S04F
Yellow (HP)	1psig - 2psig	S04G
Red (HP)	1psig - 2.5psig	S04H
White (HP)	1psig - 3psig	S0204E

NGR08 (7" x.c. Set Point - 1" Pressure Drop)

Inlet Pressure	ORIFICE							
	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-3/8"
1	390	857	982	2104	2961	4208	4286	6234
2	545	1403	1543	3039	3818	5143	7636	8961
3	701	1714	1964	3896	4831	5766	9039	9896
5	1013	2494	2665	5455	6390	6701	11610	12779
8	1247	3195	5844	7169	9662	12857	16364	17532
10	1558	3662	6468	8961	11065	15662	18701	21662
20	2182	5377	9818	14182	19558	20260	26883	37403
30	3117	7013	12779	19481	25169	25714	32338	
40	3896	8416	16753	23377	27273	27662	37403	
50	4831	9818	21506	25325	28501	28675		
60	5922	11221	27273	33662	33850	34121		
70	6692	13372						
90	8446	16626						
125	11512	22308						

Green S0608B used to develop table

NGR08 (Spring Chart)

Color	Outlet Range	P/N
Orange	2"wc - 4"wc	S0608A
Green	5"wc - 8"wc	S0608B
Black	8"wc - 18"wc	S0608C
Purple	13"wc - 24"wc	S0608D
Silver	1 psig - 2 psig	S0608E
Yellow	2 psig - 4 psig	S0608F
White	4 psig - 7 psig	S0608G



NGR02

- 1/2" to 1-1/4" NPT
- Inlet 10 to 125 psi
- Outlet 6.5" WC to 5 psi



NGR04

- 1-1/4" NPT to 3" FL
- Inlet 10 to 125 psi
- Outlet 3" WC to 3 psi



NGR06

- 1-1/4" to 3" FL
- Inlet 25 to 125 psi
- Outlet 2" WC to 7 psi



NGR08

- 1-1/4" NPT to 3" FL
- Inlet 25 to 125 psi
- Outlet 2" WC to 7 psi



Cochrane Supply Branches

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