Smart Products

Maxon Workshop

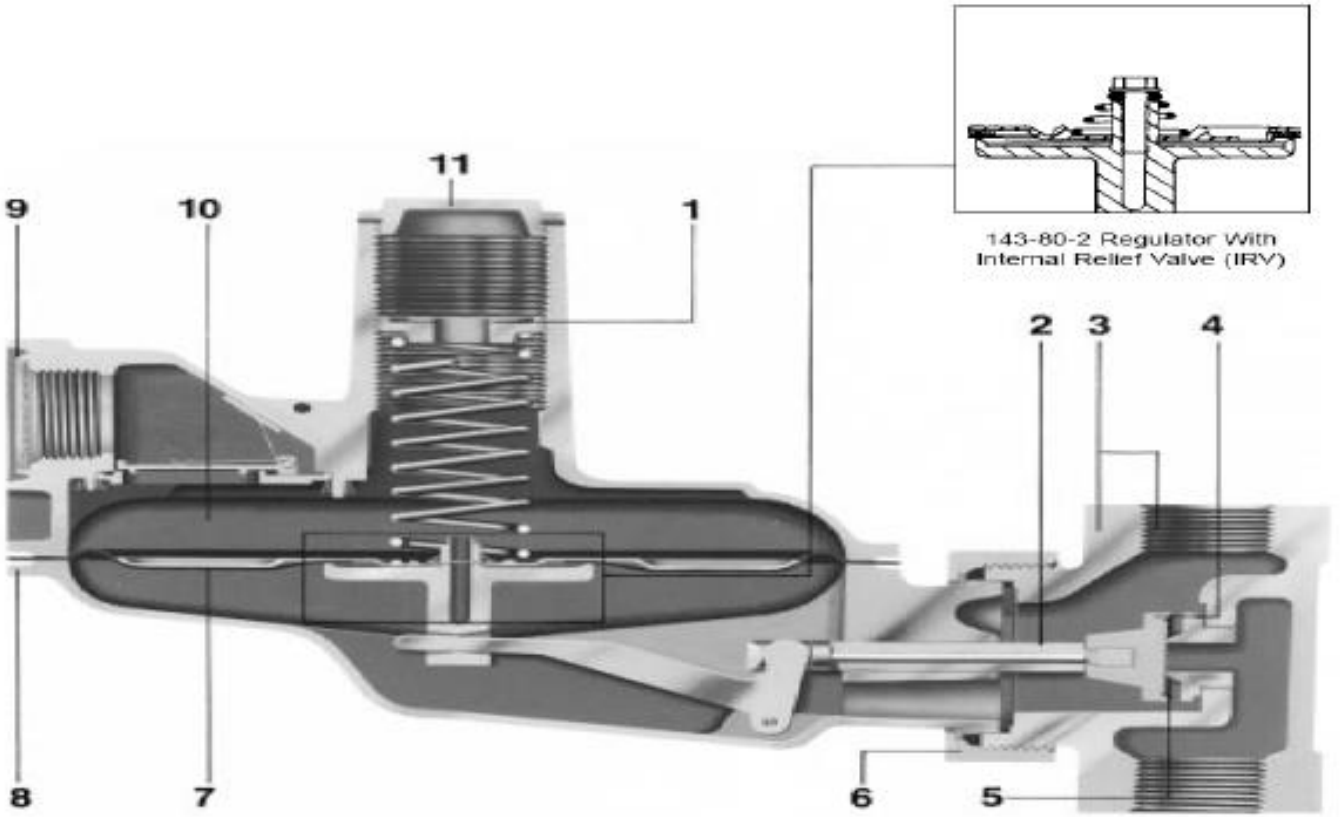
Richard Reyes

Honeywell

Critical gas flow control components

- Pressure Regulators
- Flow Control Valves

Typical regulator



143-80-2 Regulator With Internal Relief Valve (IRV)

143-80-1 Standard Regulator Construction Features

1. **Spring Adjustment**
2. **Fiberglass Reinforced Nylon Valve Stem** Minimum friction, minimum dimensional changes over operating temperature range.
3. **Cast Iron Body** (ASTM A 126 Class B) **(Test Connections** ⅛" NPT Available on inlet and outlet)
4. **Buna-N Soft Seat** Positive tight lock-up
5. **Aluminum Orifices** Interchangeable between ⅞" thru ½"
6. **Union Nut Connection** Full 360° rotation...easy servicing
7. **Buna-N Diaphragm** Nylon fabric reinforced Full 26 in.² effective area
8. **Die Cast Aluminum Alloy Diaphragm Case** High strength, light-weight corrosion resistant.
9. **Vent** ¾" or 1" NPT Screened
10. **Vent Valve**
11. **Seal Cap**

Simple but critical

MICRO-RATIO® valves

Basic control concept

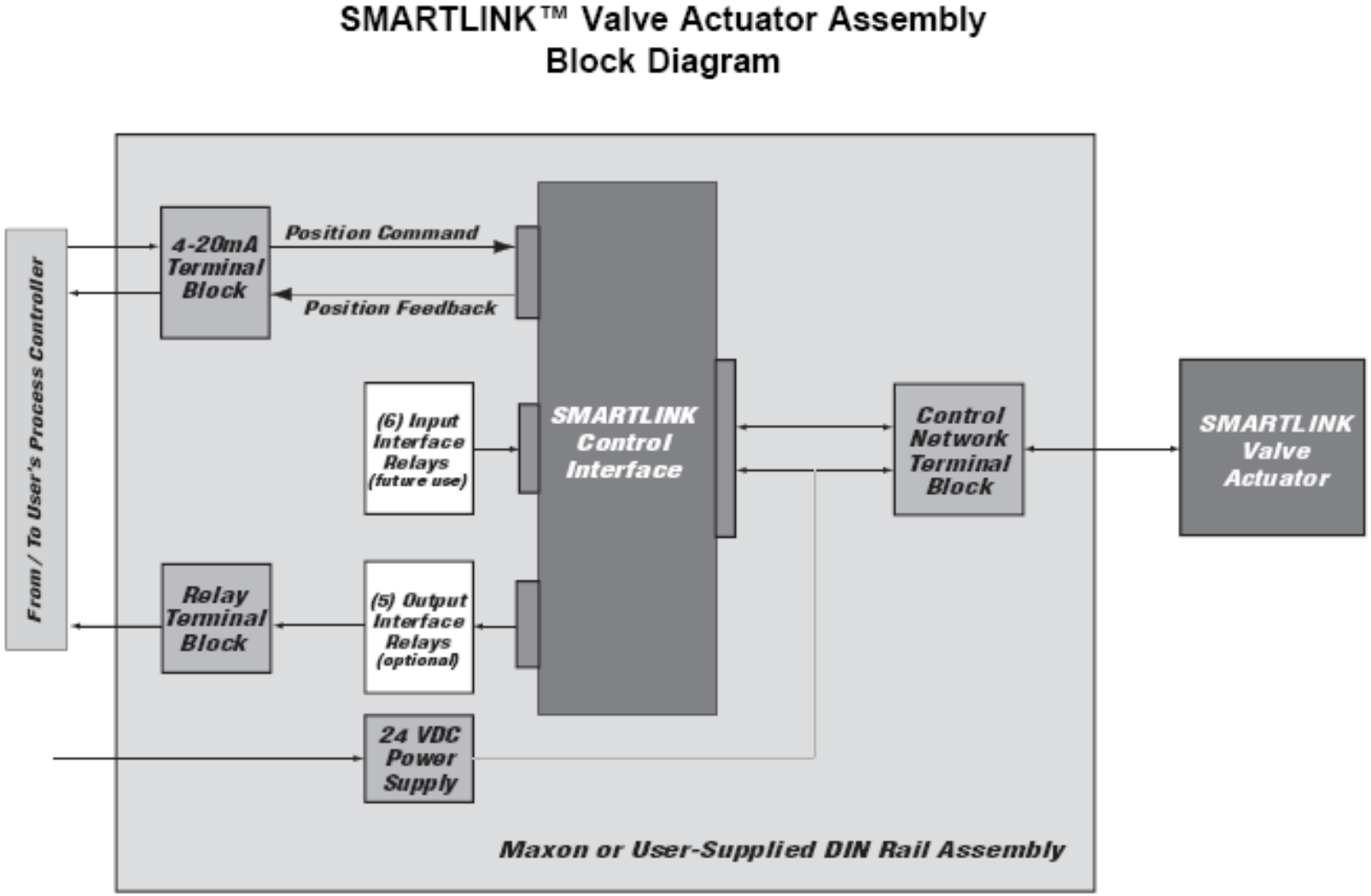
SMARTLINK® technology

Electronically linking valves

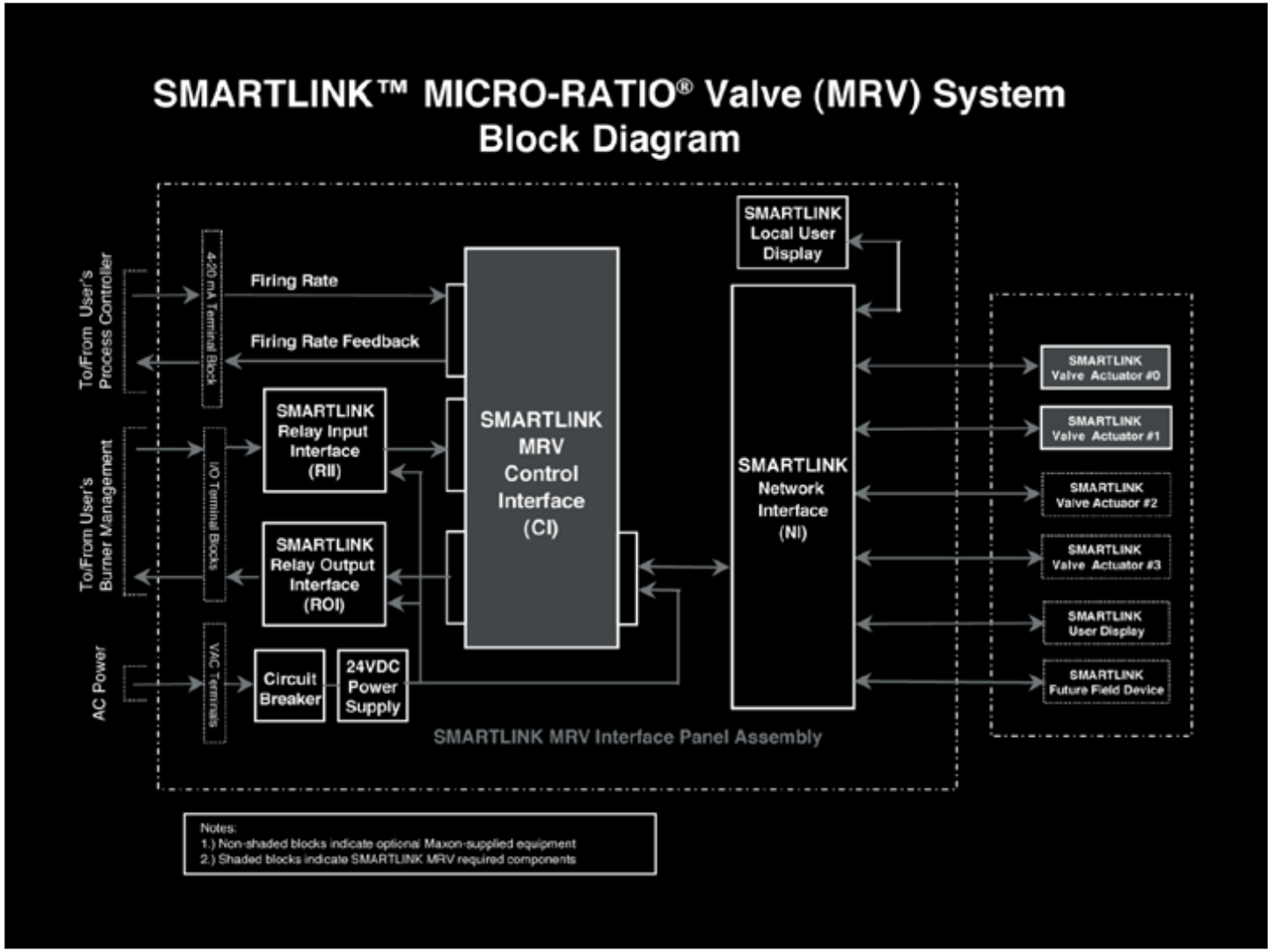
SMARTLINK

- 300 lb-in torque
- Hazardous area service for Class 1 Division 2
- Five different fuel-air ratio curves
- Manual mode
- Slave to the BMS system
- Low fire, high fire position, standby, and 19 intermediary points

SMARTLINK


SMARTLINK™ Valve Actuator Assembly
Block Diagram
From / To User's Process Controller
4-20mA Terminal Block
Position Command
Position Feedback
(6) Input Interface Relays (future use)
SMARTLINK Control Interface
Control Network Terminal Block
SMARTLINK Valve Actuator
Relay Terminal Block
(5) Output Interface Relays (optional)
24 VDC Power Supply
Maxon or User-Supplied DIN Rail Assembly

SMARTLINK



Slave to the BMS

Customized ratio profiling

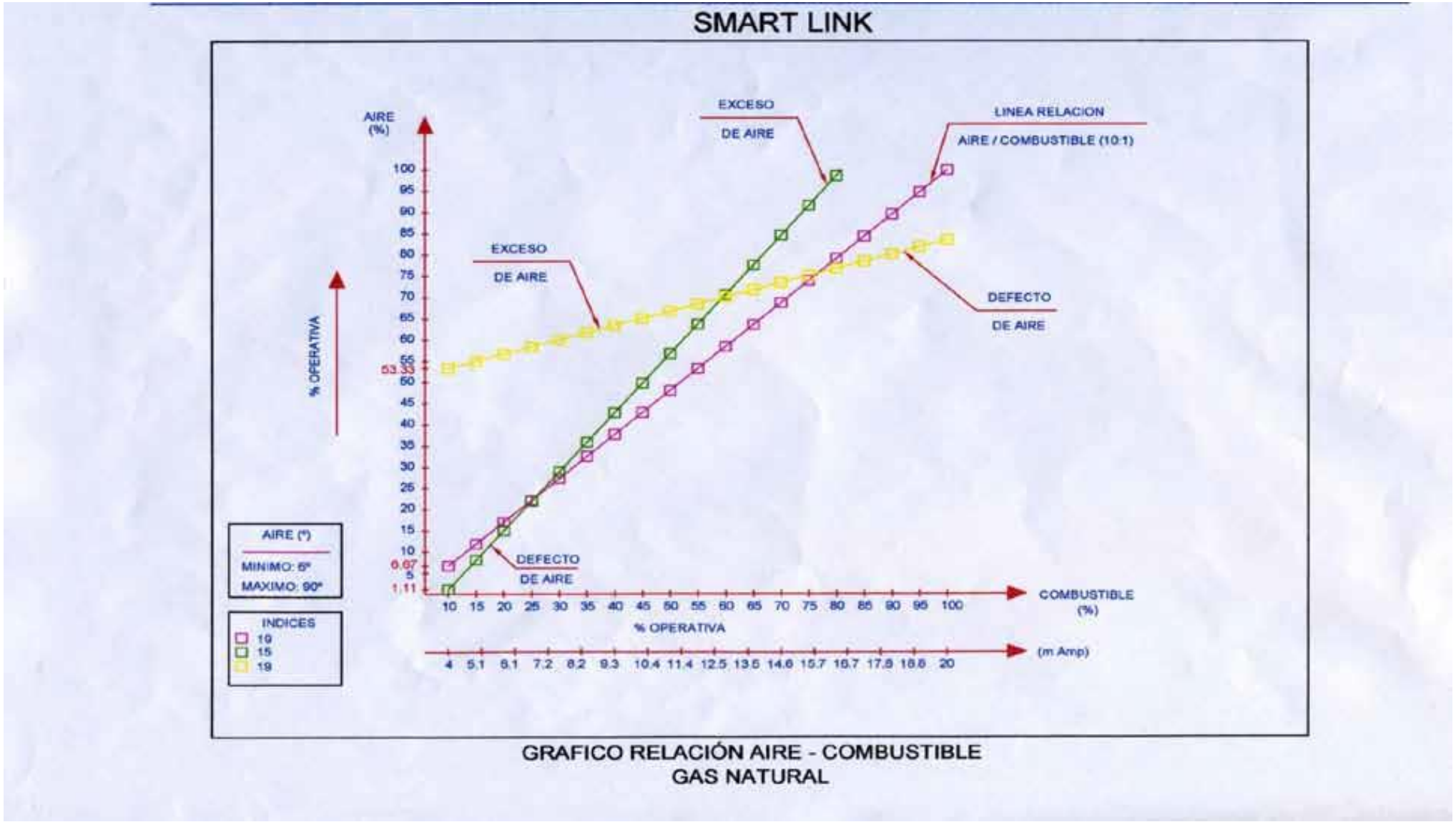


GRAFICO RELACIÓN AIRE - COMBUSTIBLE
GAS NATURAL

Reported efficiency gains (DOE Estimates)

Heat Generation

In basic terms, heat generation converts chemical or electric energy into thermal energy, then transfers this energy to the materials being heated. The improvement opportunities related to heat generation address the losses that are associated with the combustion of fuel and the transfer of the energy from this fuel to the material. Key improvement areas include:

- Air-to-fuel ratio control
- Reducing excess air
- Preheating of combustion air or oxidant
- Oxygen enrichment.

◆ Air-to-Fuel Ratio Control and Reducing Excess Air

For most process heating applications, combustion burns a hydrocarbon fuel in the presence of

Heat Generation Opportunities

Performance Improvement Description	Savings
• Control air-to-fuel ratio	5 to 25%
• Preheat combustion air	15 to 30%
• Use oxygen enriched combustion air	5 to 25%

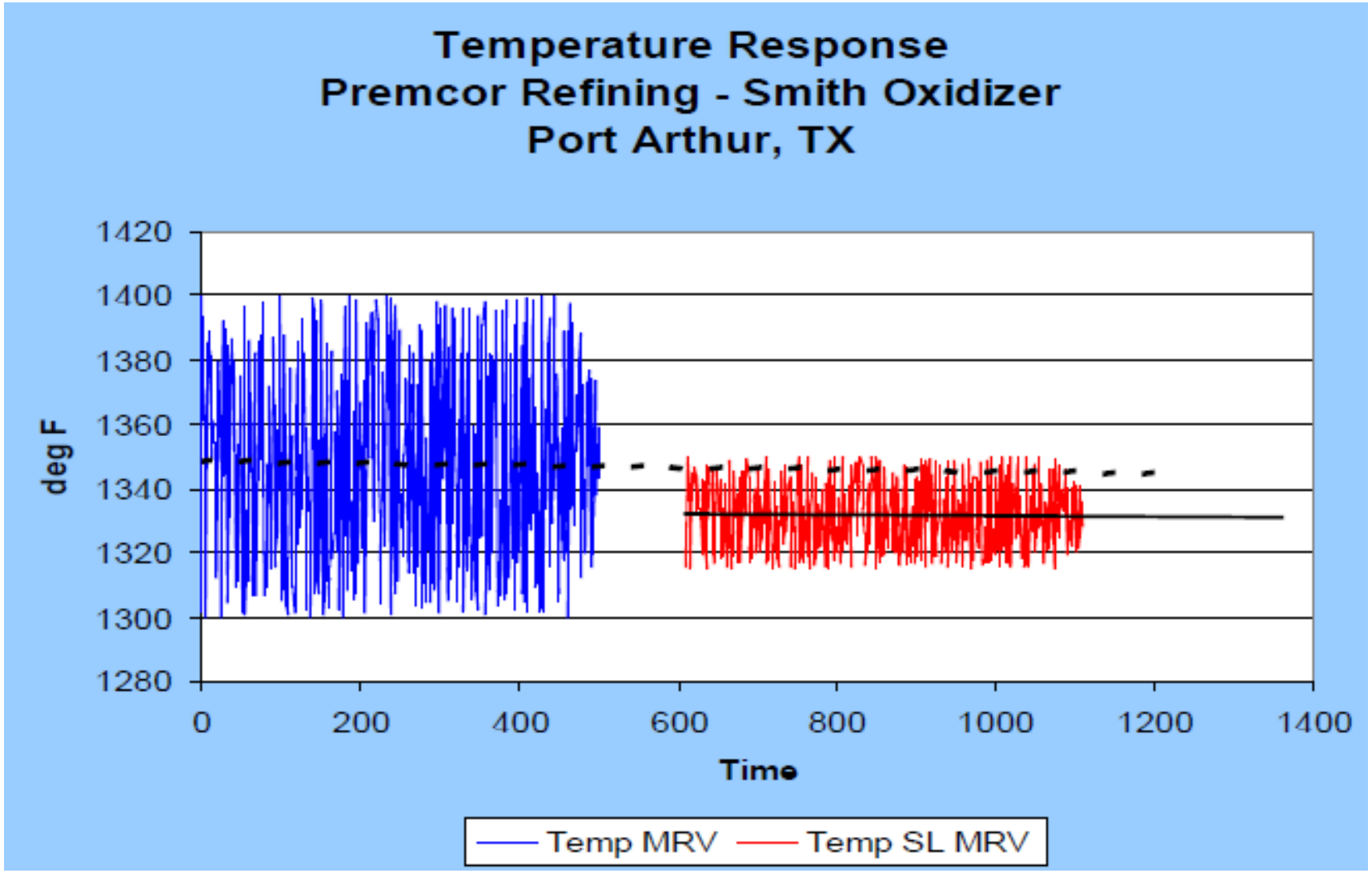
Checklist of Things to Watch

- ❑ Combustion air leaks downstream of control valve.
- ❑ Linkage condition can lead to poor control of the fuel air mixture over the range of operating conditions.
- ❑ Excess oxygen in the furnace exhaust (flue) gases indicates too much excess air.
- ❑ Flame stability indicates improper fuel air control.

References For Additional Information

Combustion Efficiency

SMARTLINK MRV performance

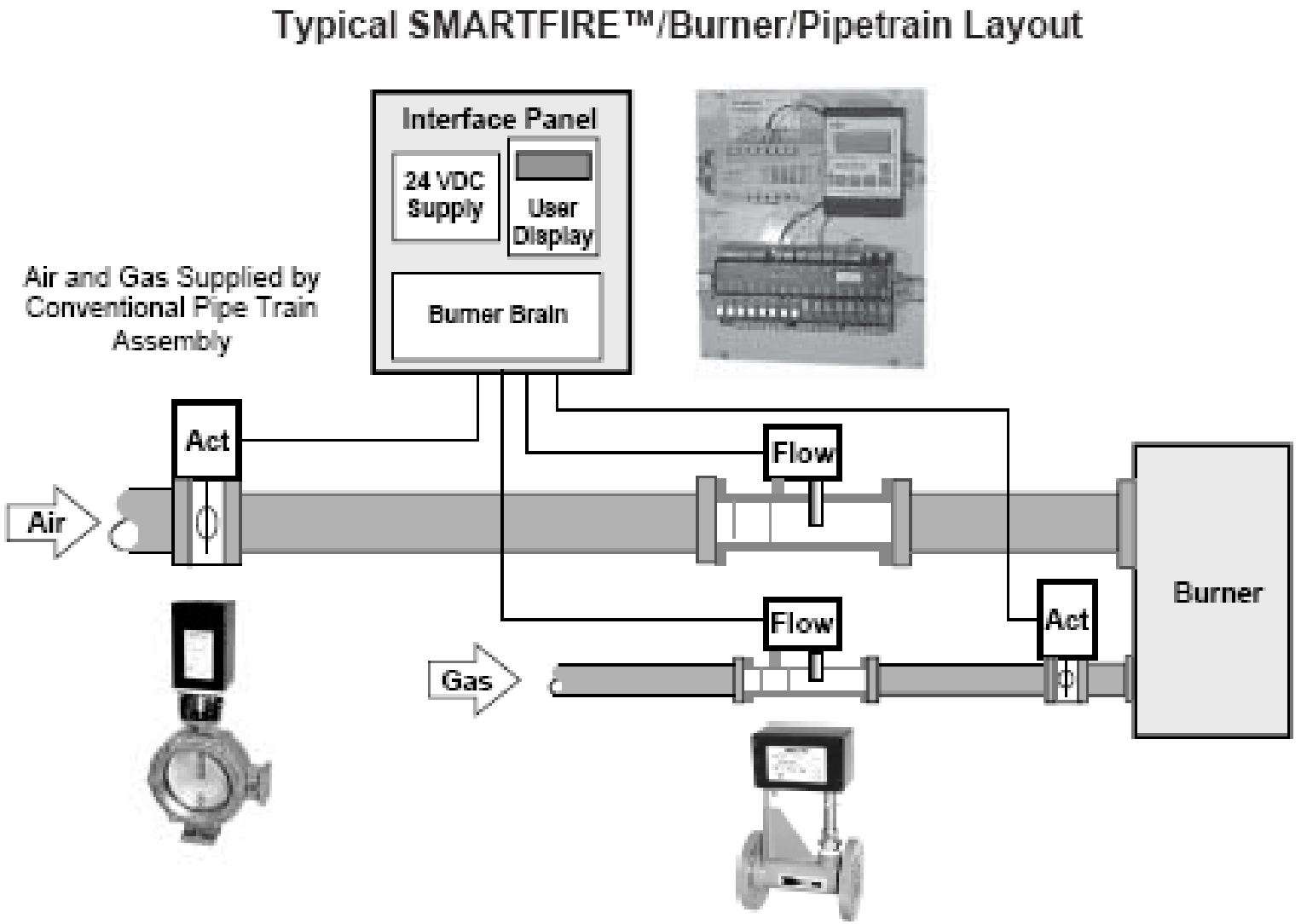


Dynamic efficiency

SMARTFIRE technology

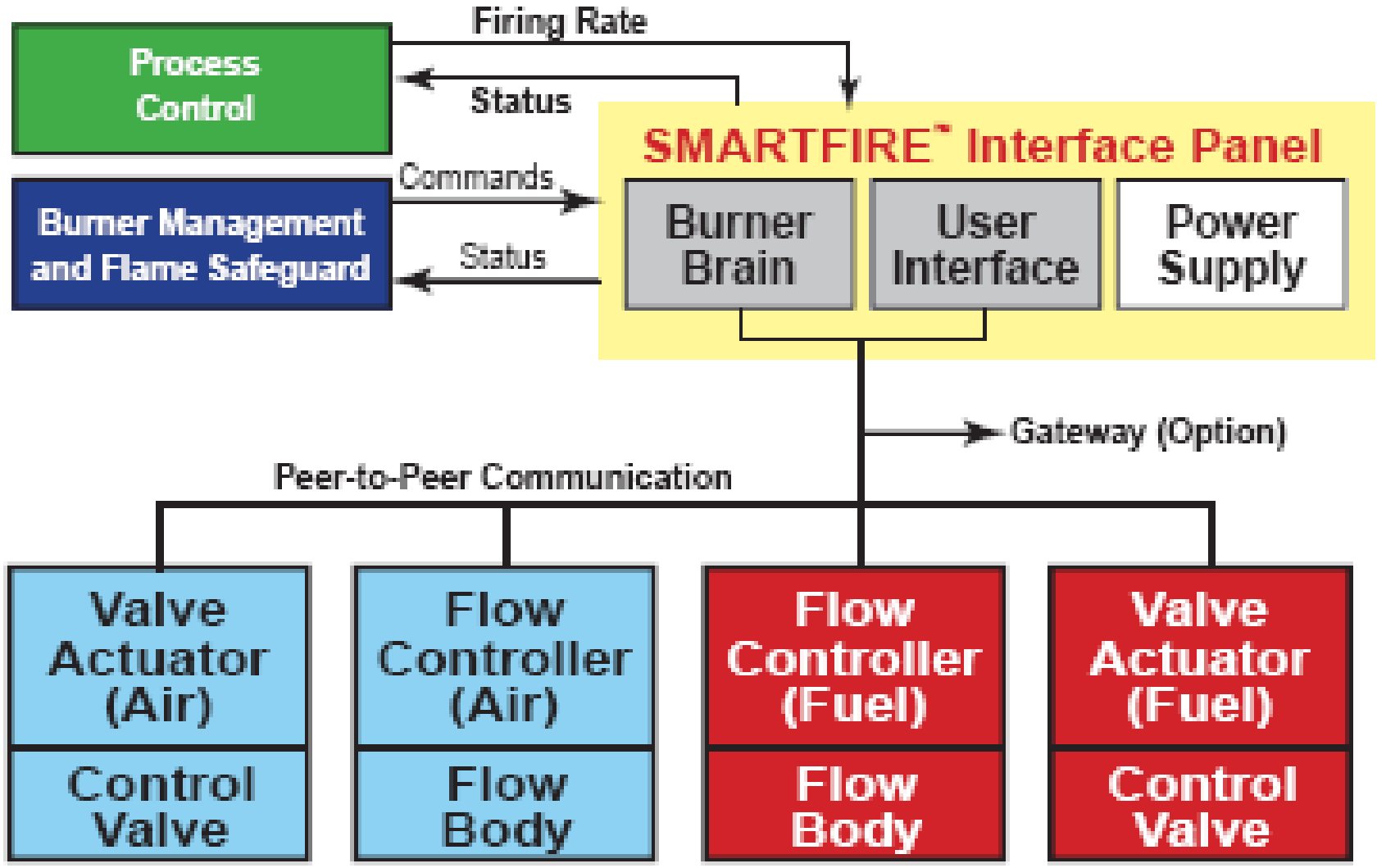
Customized ratio profiling

SMARTFIRE layout



Continuous mass flow basis compensation

SMARTFIRE functional schematic



Continuous ratio adjustments

Honeywell

www.honeywell.com

LAR Training

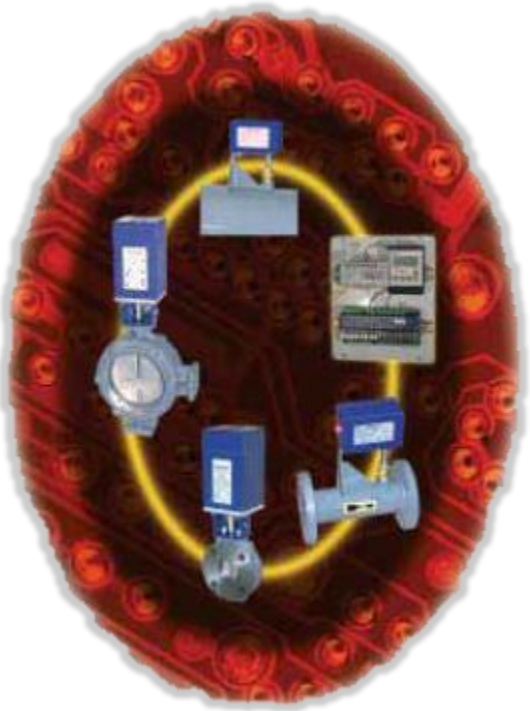
SmartFire Systems

Mark Lampe

May, 18 2015

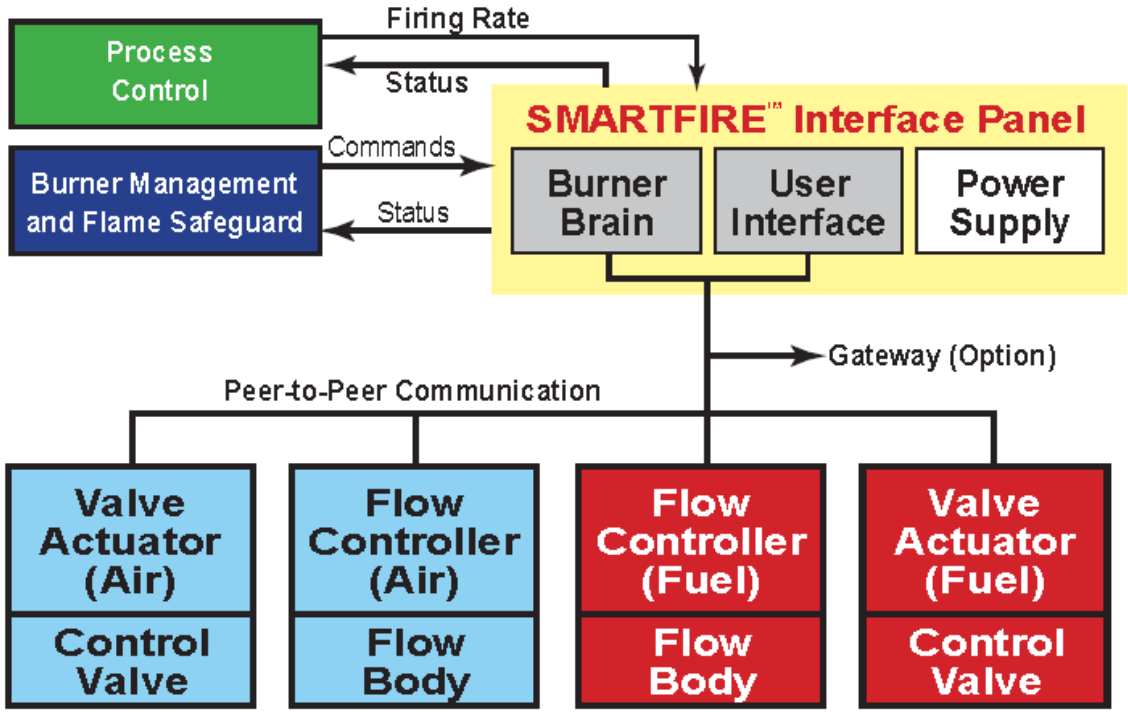
SMARTFIRE

- The SMARTFIRE™ Intelligent Combustion Control System is a turnkey, mass flow air/fuel ratio control system for industrial burners
- The System is comprised of five components that integrate easily with a conventional burner management system and pipe train:
    1. nterface Panel
    2. Air Valve Actuator
    3. Fuel Valve Actuator
    4. Air Flow Controller
    5. Fuel Flow Controller



Principles of Operations

- Communicates over a peer-to-peer digital network.
  - Control functions are performed in the field devices and the Burner Brain
- Providing higher accuracy and reliable operation in electrically noisy industrial environments
  - Affect the performance of systems with analog (4- 20mA or low voltage) control signals.
- The distributed intelligence also allows redundant system safety checks
  - Prevent tampering and unsafe conditions that can occur during combustion system commissioning and after long-term operation.

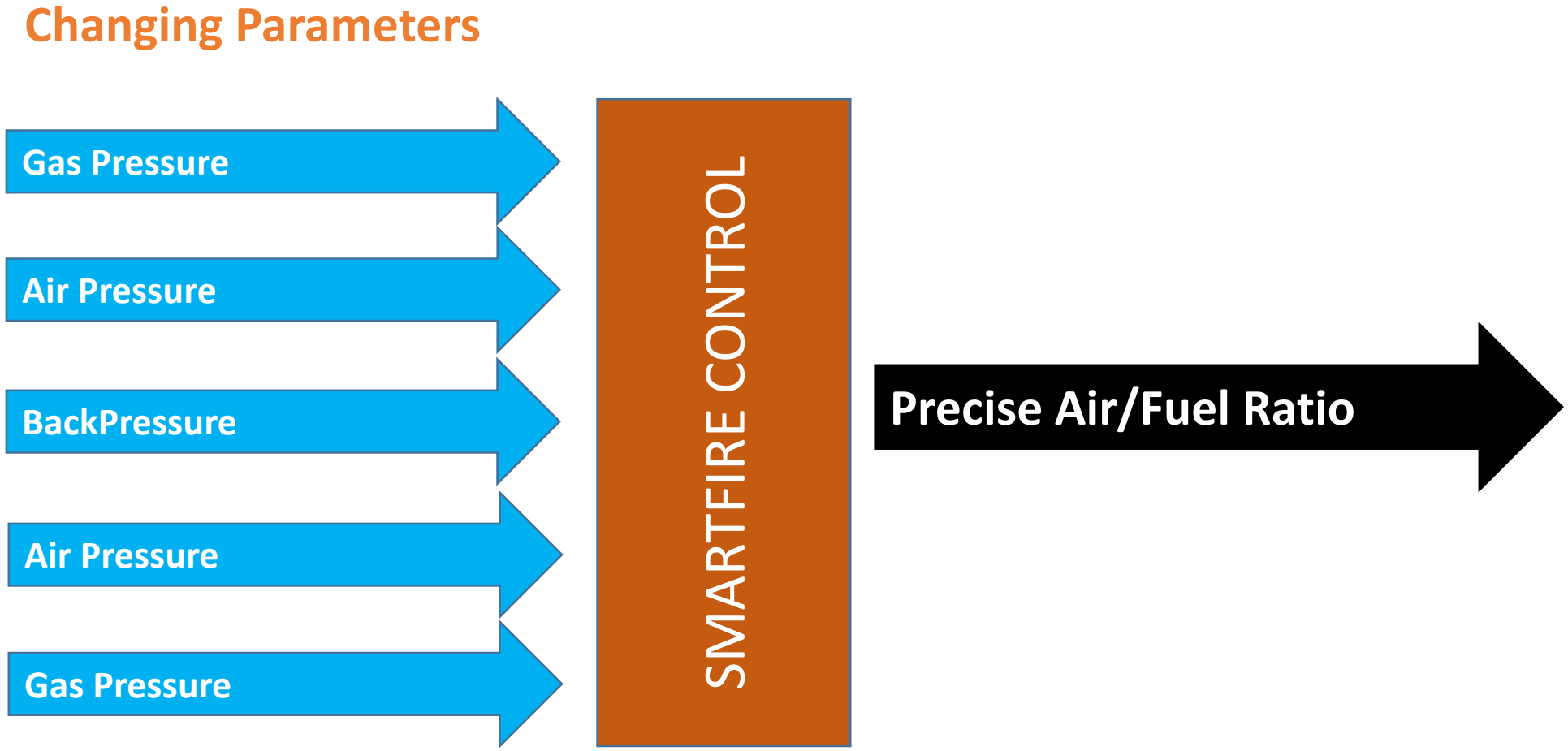


Principles of Operation

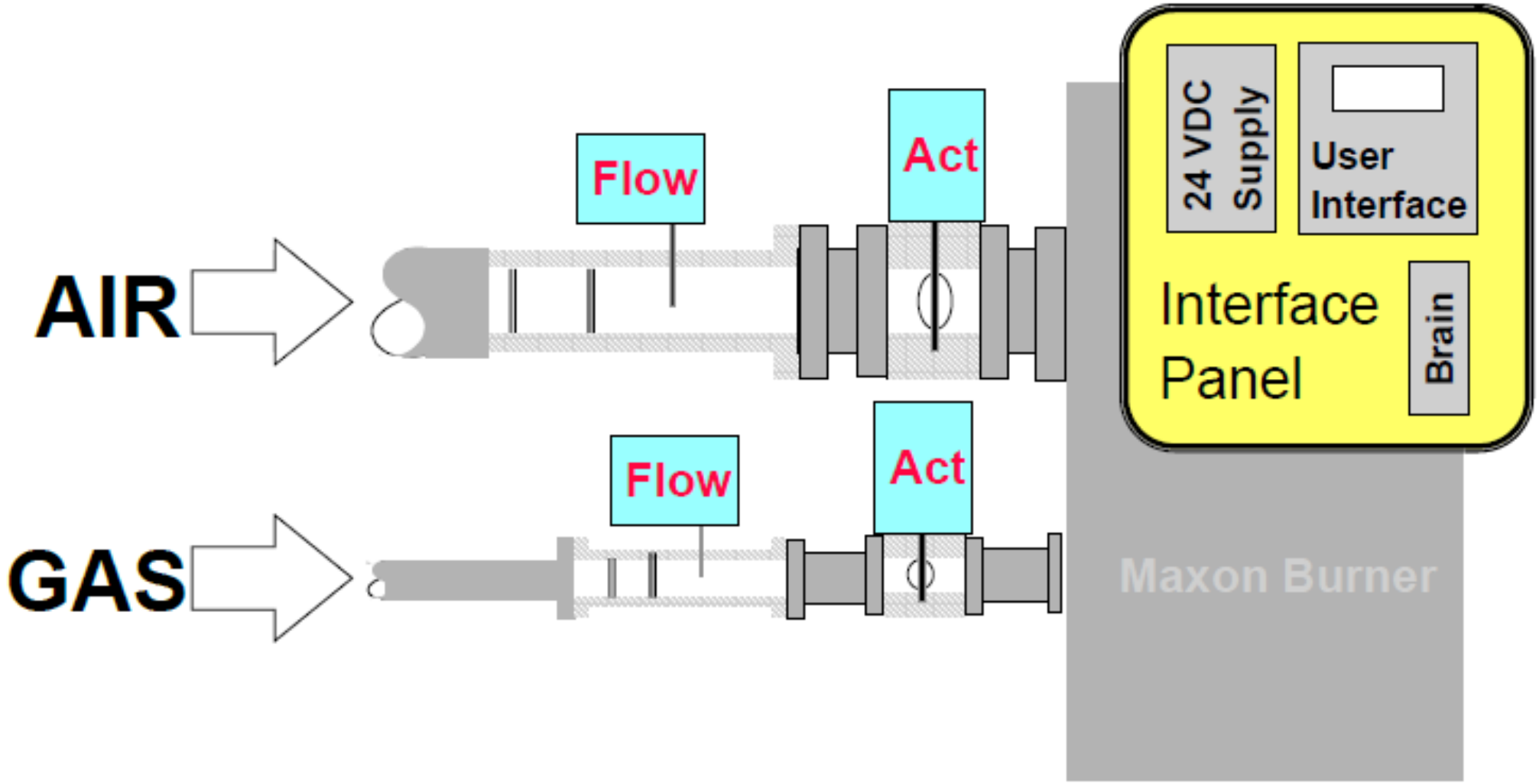
- Permits the burner to be started in response to the commands from the user's burner management system.
- Once the sequence is completed, the system maintains the factory-installed air/fuel ratio for the desired heat output set by the user's process controller.
- The System's cross-limited mass flow control of air and fuel automatically compensates for changes that affect combustion performance such as:
  - Air and fuel temperature
  - Pressure and chamber pressure.
- The process controller and burner management system are not included as part of the SMARTFIRE™ System.

SMARTFIRE

- What Smartfire does



SMARTFIRE


AIR
GAS
Flow
Act
Flow
Act
24 VDC Supply
User Interface
Interface Panel
Brain
Maxon Burner

SMARTFIRE™ Features and Benefits

- Maintains optimum burner performance in the presence of large changes in process and environmental conditions over the full range of the burner, over extended operating time
- Limited on-site combustion expertise required
- Easy to operate, install, and maintain (plug ‘n play)
- Highly repeatable burner performance
  - Low NOx operation
  - High-efficiency operation
  - Tighter temperature control
- Increased burner life with less system downtime
- Precise electronic control of air and fuel flow to the burner to maximize efficiency and minimize emissions simultaneously

SMARTFIRE™ Features and Benefits

- Maintain emissions or fuel efficiency over the entire operating range of the burner, not just at one burner set point
- Automatically compensates for changes in combustion or process conditions with full cross-limited ratio control, maximizing burner performance and ensuring a highly repeatable heat source
- Advanced diagnostics and troubleshooting provide real-time information about combustion and process system performance
- Optional remote monitoring gateway reduces process downtime by providing immediate off-site technical support over a standard phone line

SMARTFIRE™ Features and Benefits

- Rugged industrial design includes:
  - NEMA 4X enclosures
  - High torque actuators
  - All-digital field device communications - ensuring reliable operation in harsh environments
- Redundant system safety checks built into intelligent components, significantly reducing the risks associated with combustion system commissioning and maintenance neglect
- FM and CSA approved
- Meets requirements for European Electromagnetic Compatibility (EMC) and Low Voltage

LAR Training

Control Valves

Mark Lampe

May, 18 2015

Ratio Control Valves

- Flow control solutions keep thousands of plants and products moving every day.
- With a wide breadth of solutions from intelligent mass flow control to economical mechanical control, our flow and ratio control valve products provide dependable, accurate control of air and fuel world wide.

Air/Fuel Control

- Mechanical Flow Control
  - Parallel Position
  - Flow Control
  - Linkage mechanism
- Electronic Flow Control
  - Direct-coupled with a Control Interface unit between the Valve Actuator and the user's process controller, PLC, or DCS.
- Parallel Position
  - Air/fuel flow curves are controlled at the same rate
  - Single valve
  - Dual valve
- Modulated Position
  - Air/fuel control is modulated separately
  - Dual Valve
  - Flow Meter

Control Valves

- Mechanical linked fixed port valve
- Mechanical linked adjustable characteristic valve
- Cross connected regulator
- Electronic linked fixed port valve
- Electronic linked adjustable characteristic valve
- Synchro Valves
- Micro-Ratio Valves
- CV Valves
- BV Valves
- SMARTLINKTM
- SMARTLINK DSTM

Synchro Valves

- Highly precise fuel/ratio control achieved by a cam using twelve flow adjusting screws.
- Poppet or butterfly design allows for accurate control for any fuel requirement.
- Air and fuel Synchro valves can be linked to form a micro-ratio valve.

Micro-Ratio Valves

- Single motor operates multiple valves.
- Adjustable throttling range for wide turndown capabilities.
- Multiple valve arrangements:
  - M-?” X ?”-M,S,P,O,

“A” Style Valve

- A Style Synchro flow control valve bodies are designed to meet ANSI flange specifications.
- High pressure rating flow control valves are available in cast iron, carbon steel and brass bodies.
- SYNCHRO Gas Valves may be used independently for individual adjustable gradient fuel flow control
- In tandem with other fuel and air control valves for more sophisticated multi-zone control or multi-fuel applications

Series “CV” &”BV”

- Series "CV" Flow Control Valves incorporate a full-flow, fixed gradient butterfly valve design for high capacities at low pressure drops
- Using minimum operating torque
- Used to balance gas or air flows in multiple-burner systems fed by a common manifold.
- Feature a full-flow butterfly design with provision for locking in any position.
- Both flow control valves are used for air, gas and oil proportioning control.

SMARTLINK CV Actuator

- Provides a high degree of precision, repeatability, and commissioning flexibility for industrial flow control
- Ruggedly built with FM, CE, and CSA approvals for outdoor, weatherproof installations.
- FM approved for hazardous area applications in mills, refineries and other plants
- Uses integrated position feedback and a stepper motor for continuous, high precision control of Maxon butterfly valves
- Adjustable to 0.1 degree accuracy
- Can be positioned in up to 800 adjustment stops
- A level of accuracy never before available in a heavy duty, industrial control valve

Smartlink CV Assembly No. Page

MODEL NUMBER

Butterfly valves

Configured Item Number				Valve Body					Actuator				Fluid
Valve Size	Flow Capacity	Series		Body Connection	Body Seals	Body Material	Body Internals		Torque Rating	Software Version	Language		Fluid
0100	S	SLCV	-	A	A	1	1	-	1	1C	A	-	I

Size
0100 - 1"
0125 - 1.25"
0150 - 1.5"
0200 - 2"
0250 - 2.5"
0300 - 3"
0400 - 4"
0600 - 6"
0800 - 8"
1000 - 10"
1200 - 12"
1400 - 14"
1600 - 16"

Flow Capacity
S - Standard

Series
SLCV - SMARTLINK® Butterfly Valve

Body Connection
A - ANSI Flange
M - "M" Style Flange
X - Special
" - Actuator Only

Body Seals
A - Buna-N
B - Viton
X - Special
" - Actuator Only

Body Material
1 - Cast Iron
2 - Carbon Steel
3 - Brass
5 - Stainless Steel
X - Special
" - Actuator Only

Body Internals
1 - Trim Package 1
2 - Trim Package 1, Oxy Clean
5 - Trim Package 2
6 - Trim Package 2, Oxy Clean
X - Special
" - Actuator Only

Torque Rating
1 - 300 in-lbs
X - Special
" - Valve Body Only

Software Version [1]
1C - Standard software
"" - Valve Body Only

Language
A - English
X - Special
" - Valve Body Only

Fluid
A - 150F/70C Max Air
B - 350F/177C Max Air
C - 400F/204C Max Air
D - Butane Gas
E - Coke Oven Gas
F - Digester Gas
G - Landfill Gas
H - Manufactured Gas
I - Natural Gas
J - Oxygen
K - Propane Gas
L - Propane/Butane Blend Gas
M - Refinery Gas
N - Sour Natural Gas
O - Town Gas
X - Special

[1] The latest version is the default.

Trim Package Options and Typical Materials:

1 - 300 Series Stainless Steel stem, 300 Series Stainless Steel disc and Bronze bushings

2 - 300 Series Stainless Steel stem, 300 Series Stainless Steel disc and PEEK bushings

Ball valves

Configured Item Number				Valve Body					Actuator			
Valve Size	Flow Capacity	Series		Body Connection	Body Seals & Packing	Body Material	Body Internals		Torque Rating	Software Version	Language	
0100	7	SLBV	-	B	E	2	1	-	1	1C	A	

Size
0050 - .5"
0075 - .75"
0100 - 1"
0125 - 1.25"
0150 - 1.5"
0200 - 2"

Flow Capacity
1 - 1/32" Slot
2 - 1/16" Slot
3 - 1/8" Slot
4 - 3/16" Slot
5 - 1/4" Slot
6 - 30° V
7 - 60° V
8 - 90° V
9 - Round Port

Series
SLBV - SMARTLINK® Ball Valve

Body Connection
A - ANSI Flanged 150#
B - ANSI Threaded
X - Special [1]
" - Actuator Only

Body Seals & Packing
E - Teflon
X - Special [1]
" - Actuator Only

Body Material
2 - Carbon Steel
5 - Stainless Steel
X - Special [1]
" - Actuator Only

Body Internals
1 - Trim Package 1
X - Special [1]
" - Actuator Only

Torque Rating
1 - 300 in-lbs
X - Special
" - Valve Body Only

Software Version [2]
1C - Standard software
"" - Valve Body Only

Language
A - English
X - Special
" - Valve Body Only

[1] Please see page 4 for all available ball valve options. These will require a special configuration.

[2] The latest version is the default.

Trim Package Options and Typical Materials:

1 - 300 Series Stainless Steel Ball, 300 Series Stainless Steel Stem and Teflon Seat Rings

SMARTLINK MRV

- An electronic parallel positioning system for air/fuel ratio control
- The industry standard in gas valves when operational reliability and precision are required
- Includes up to four gas valves and a Control Interface Unit to electronically link the valves to your process controller
- Each flow control valve is continuous duty
- Fully adjustable to 0.1 degree accuracy to provide dynamic control of burner ratios for optimal performance

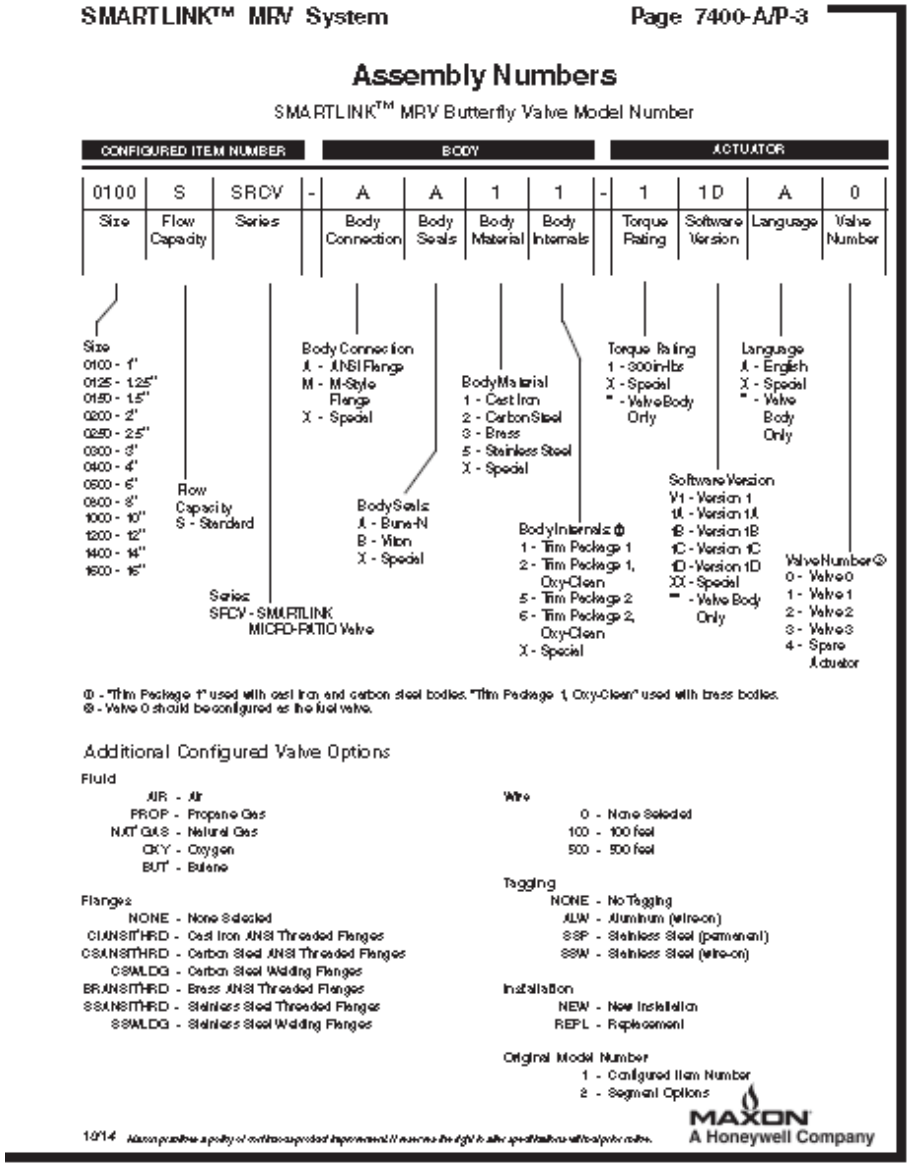
SMARTLINK MRV

- SMARTLINK® provides easy, on-site customization of the valve flow characteristic allowing users to "shape" valve response to their needs.
- This feature makes it an ideal solution for parallel valve positioning systems in combustion control applications
- It incorporates a precision, planetary gear-head with integrated position feedback and a stepper motor for continuous duty control of various valves.
- Each valve actuator is powered by 24VDC and includes a digital position control loop and a digital interface that ensures reliable operation even in electrically noisy environments.

SMARTLINK MRV

- Small footprint, weatherproof enclosure and Class I, Division 2 approvals
- Front-mounted switches and indicators are provided for displaying alarms, system configuration, and valve characterization.
- The Control Interface also provides a precision 4-20 mA firing rate feedback signal.

Smartlink MRV Assembly No. Pages



SMARTLINK™ MRV System Page 7400-A/P-3

Assembly Numbers

SMARTLINK™ MRV Butterfly Valve Model Number

CONFIGURED ITEM NUMBER				BODY					ACTUATOR			
0100	S	SRCV	-	A	A	1	1	-	1	1D	A	0
Size	Flow Capacity	Series		Body Connection	Body Seals	Body Material	Body Internals		Torque Rating	Software Version	Language	Valve Number

Size
0100 - 1"
0125 - 1.25"
0150 - 1.5"
0200 - 2"
0250 - 2.5"
0300 - 3"
0400 - 4"
0500 - 5"
0600 - 6"
0800 - 8"
1000 - 10"
1200 - 12"
1400 - 14"
1600 - 16"

Flow Capacity
S - Standard

Series:
SRCV - SMARTLINK MICRO-RATIO Valve

Body Connection
A - ANSI Flange
M - M-Style Flange
X - Special

Body Seals:
A - Buna-N
B - Viton
X - Special

Body Material
1 - Cast Iron
2 - Carbon Steel
3 - Brass
5 - Stainless Steel
X - Special

Body Internals: ①
1 - Trim Package 1
2 - Trim Package 1, Oxy-Clean
5 - Trim Package 2
6 - Trim Package 2, Oxy-Clean
X - Special

Torque Rating
1 - 300 in-lbs
X - Special
" " - Valve Body Only

Software Version
V1 - Version 1
1A - Version 1A
1B - Version 1B
1C - Version 1C
1D - Version 1D
XX - Special
" " - Valve Body Only

Language
A - English
X - Special
" " - Valve Body Only

Valve Number ②
0 - Valve 0
1 - Valve 1
2 - Valve 2
3 - Valve 3
4 - Spare Actuator

① - "Trim Package 1" used with cast iron and carbon steel bodies. "Trim Package 1, Oxy-Clean" used with brass bodies.
② - Valve 0 should be configured as the fuel valve.

Additional Configured Valve Options

Fluid
AIR - Air
PROP - Propane Gas
NAT GAS - Natural Gas
OXY - Oxygen
BUT - Butane

Flanges
NONE - None Selected
CIANSITHRD - Cast Iron ANSI Threaded Flanges
CSANSITHRD - Carbon Steel ANSI Threaded Flanges
CSWLDG - Carbon Steel Welding Flanges
BRANSITHRD - Brass ANSI Threaded Flanges
SSANSITHRD - Stainless Steel Threaded Flanges
SSWLDG - Stainless Steel Welding Flanges

Wire
0 - None Selected
100 - 100 feet
500 - 500 feet

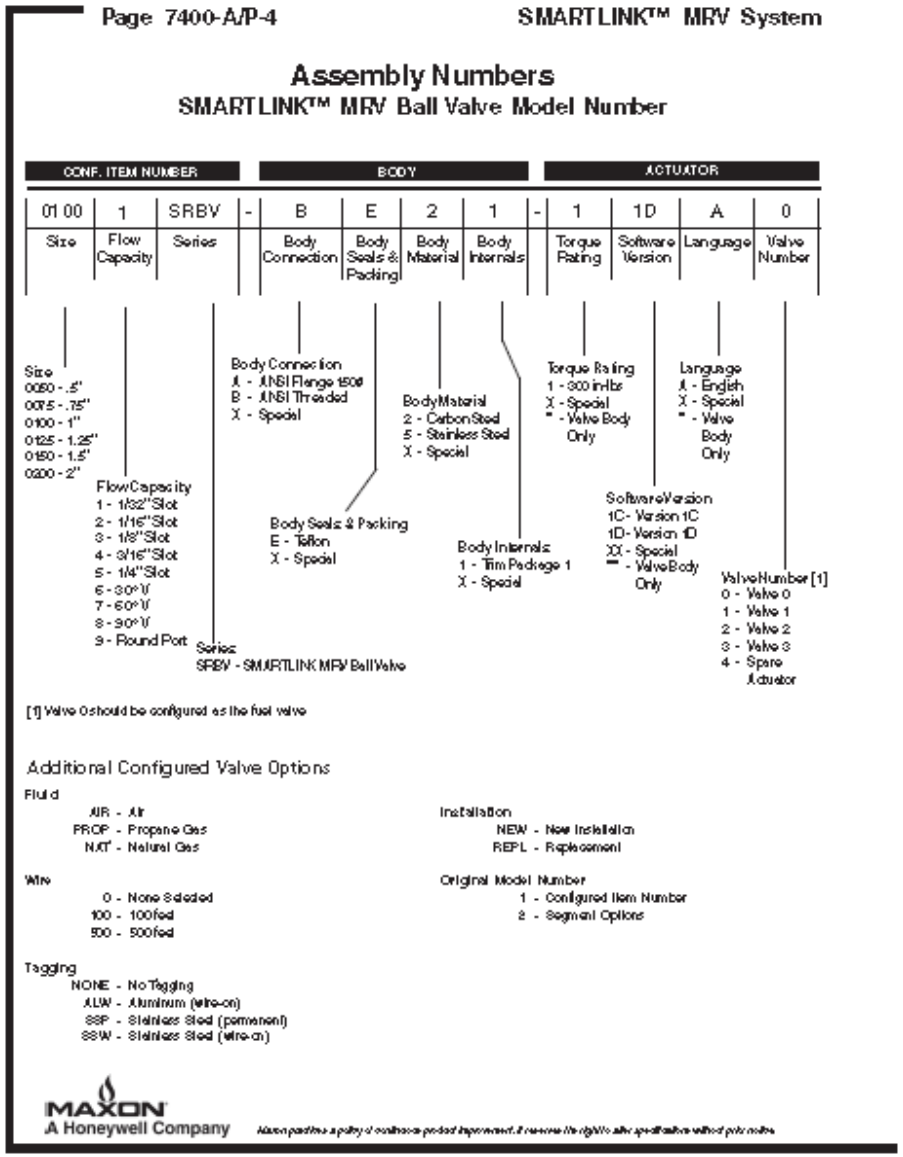
Tagging
NONE - No Tagging
ALW - Aluminum (wire-on)
SSP - Stainless Steel (permanent)
SSW - Stainless Steel (wire-on)

Installation
NEW - New Installation
REPL - Replacement

Original Model Number
1 - Configured Item Number
2 - Segment Options

1/014 Maxon practices a policy of continuous product improvement. It reserves the right to alter specifications without prior notice.

MAXON
A Honeywell Company



Page 7400-A/P-4 SMARTLINK™ MRV System

Assembly Numbers

SMARTLINK™ MRV Ball Valve Model Number

CONF. ITEM NUMBER				BODY					ACTUATOR			
0100	1	SRBV	-	B	E	2	1	-	1	1D	A	0
Size	Flow Capacity	Series		Body Connection	Body Seals & Packing	Body Material	Body Internals		Torque Rating	Software Version	Language	Valve Number

Size
0050 - .5"
0075 - .75"
0100 - 1"
0125 - 1.25"
0150 - 1.5"
0200 - 2"

Flow Capacity
1 - 1/32" Slot
2 - 1/16" Slot
3 - 1/8" Slot
4 - 3/16" Slot
5 - 1/4" Slot
6 - 30° V
7 - 60° V
8 - 90° V
9 - Round Port

Series:
SRBV - SMARTLINK MRV Ball Valve

Body Connection
A - ANSI Flange 150#
B - ANSI Threaded
X - Special

Body Seals & Packing
E - Teflon
X - Special

Body Material
2 - Carbon Steel
5 - Stainless Steel
X - Special

Body Internals:
1 - Trim Package 1
X - Special

Torque Rating
1 - 300 in-lbs
X - Special
" " - Valve Body Only

Software Version
1C - Version 1C
1D - Version 1D
XX - Special
" " - Valve Body Only

Language
A - English
X - Special
" " - Valve Body Only

Valve Number [1]
0 - Valve 0
1 - Valve 1
2 - Valve 2
3 - Valve 3
4 - Spare Actuator

[1] Valve 0 should be configured as the fuel valve

Additional Configured Valve Options

Fluid
AIR - Air
PROP - Propane Gas
NAT - Natural Gas

Wire
0 - None Selected
100 - 100 feet
500 - 500 feet

Tagging
NONE - No Tagging
ALW - Aluminum (wire-on)
SSP - Stainless Steel (permanent)
SSW - Stainless Steel (wire-on)

Installation
NEW - New Installation
REPL - Replacement

Original Model Number
1 - Configured Item Number
2 - Segment Options

MAXON
A Honeywell Company

Maxon practices a policy of continuous product improvement. It reserves the right to alter specifications without prior notice.

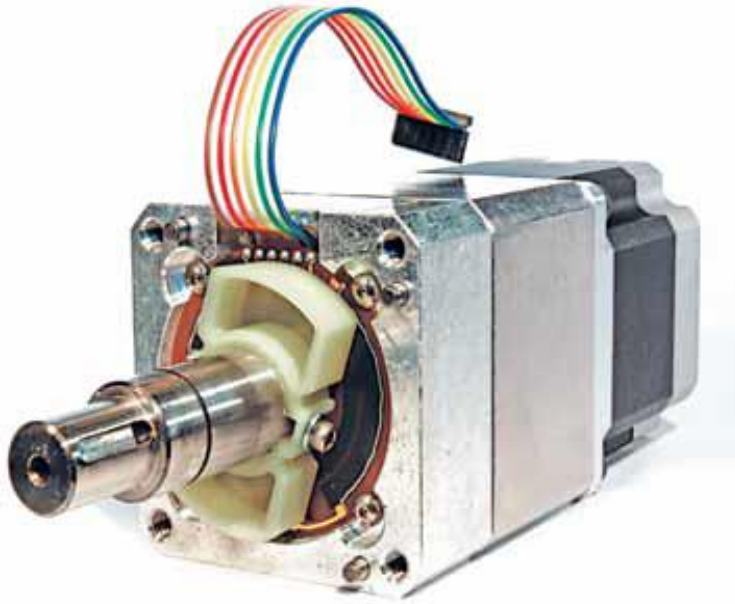
Smartlink DS Overview

This product line is an extension of the current SMARTLINK® actuator series

- SMARTLINK® DS offers substantial enhancements:
  - Flexibility in options / upgrades – over 8000 variations
  - Small footprint, compact installations
  - Simple HMI user interface and commissioning process
  - Industry standard communications protocols
  - Wide range of valve compatibilities
  - Multiple communication protocols
  - Health reporting

Smartlink DS Overview

- A general purpose actuator (optional)
  - Offered in both 300 and 900 in-lb's of torque
  - 300 in-lb travel 100° - 15 seconds
  - 900 in-lb travel 100° - 45 seconds
- High degree of positioning accuracy
  - +/- 0.1°over full 100° of travel (w/o valve)
  - 1000 possible valve positions available
  - Repeatable over continuous duty operation
- Dual Positioning Pots
  - Actuator confirms position location
  - Long life conductive plastic potentiometers
- User selectable deadband
  - ±0.1 - ±0.5 degrees
- Overhung Shaft Load
  - Handles 750 lbs of side load force, more options when connecting to external linkages



Smartlink DS Overview

- Robust performance
  - 10M repositions over 10-degree span
  - 100M repositions over entire 100-degree span
- Wide range of installation location options
  - NEMA 4, 4x, IP67 for wash-down, dust and contaminant containment
  - Wide operating temperature range
    - -40°F to +158°F (-40°C to +70°C)

- C1-D2 and non C1-D2 versions (optional)
  - Certified for use in non-incendive, hazardous locations or for general purpose
  - Price differential to align general purpose to compete in general actuator market
- AC or DC (optional)
  - 100-240 VAC 50/60 Hz (0.3A rms @100 VAC)
  - 24VDC (1.1A max)
  - Dual NPT input/output for low/high power or power/logic separation.

Smartlink DS Overview

- Brake (optional)
  - Limits movement upon power failure
  - Limits movement during over-torque event
  - Closes in 10ms.
  - Any unit with brake requires 11.5” body
- Valve compatibilities
  - Includes valve position indicator
  - Wide range of valve MOC, A Valves, M Valves
    - CV- Butterfly valves 1” – 18”
    - BV- Ball valves ½” – 2”
    - SA- Stand-alone actuator only
    - CA- Actuator with mounting bracket/couplings
    - Mechanical mount is compatible with current Smartlink product line
- Additional mounting options
  - 5 different shaft configurations
  - Low and high torque couplings

Wiring Schematic

- Direct 4-20mA Interface
  - Direct 4-20mA control
  - 2-wire connection
  - Modular plugs
  - No intermediate DIN mounted communications module or display
- Modbus Interface
  - Substantially less wiring/installation complexity
  - Uniquely identifies each actuator and addresses these individually and is not specific to a direct wiring layout.
- Offers PLC OEM's more options for fuel train configurations
- Better health feedback via Modbus registers
  - For reporting different functions of the actuator
  - User configuration and commands
  - I/O & Operational Status Data
  - Alarm and lockout history, actuator life data and manufacturing configuration

On – Board Display

- Display (optional)
  - Onboard display to commission, review alarms, status, and health reporting
  - 2 line LCD
  - Backlit for viewing in dark installations
  - LEDs indicate when in manual mode or when an alarm condition exists
  - Highly durable, UV resistant cover
  - Ability to withstand direct impact and direct jet water stream (NEMA 4, 4x, IP 67)
  - Range of LCD temperature operation
  - -20°F to +158°F (-20°C to +70°C)
  - Not intended to be viewed from a distance
- Alternate Programming Options
  - Modbus communications to PLC
  - Modbus direct to the DCS
  - Program direct from a laptop via RS-485

Simplified User Interface

- Simple and easy to navigate interface
  - move up/down, left/right will take you to the heading in the adjacent column
- Display is set up to establish user accessed
  - locked fields on columns 2 & 3
- Open non-password protected actuator status in column 1
- Open non-password protected actuator history in column 4

Actuator Status	Unit Setup A	Unit Setup B	Actuator History
1A Control Mode ition 100.0	2A Unit Setup A ocked ↵ Lock	3A Unit Setup B Unlocked ↵ Lock	4A Run Days-Time D:367 T:23:59:59
Command en 100.0	2B Change Mode Control ↵ For Manual	3B Change Mode ↵ For Manual	4B Lockout Log Events: 1 ↵ To ↑↓
Position en 100.0 D	2C Set Position POSxxx.x° ↵ To ↑↓	3C Set Passcode PC: 0000 ↵ To ↑↓	4C Alarm Log Events: 0 <To ↑↓
Command n 100.0 D	2D Set LPP Trip LPPxxx.x° ↵To ↑↓	3D Disable LPP LPPxxx.x° [↵]	4D Lockout Event Counters ↵ To ↑↓
Analog Inpu rent 20.00	2E Set HPP Trip HPPxxx.x° ↵ To ↑↓	3E Disable HPP HPPxxx.x° [↵]	4E Alarm Event Counters ↵ To ↑↓
Analog Out rent 20.00	2F Set Min Pos MINxxx.x° ↵ To ↑↓	3F Disable LOS LOSxxx.x° [↵]	4F S/W Version 01.000.01.000
Lo Pos Prov Relay O	2G Set Max Pos MAXxxx.x° ↵ To ↑↓	3G Disable F-T F-Txxx.x° [↵]	4G Mfg Min Pos Open 0.0 DEGS
Hi Pos Prov Relay O	2H Set LOS Pos LOSxxx.x° ↵ To ↑↓	3H Ma Deadband 0.1 DEGS ↵ To↑↓	4H Mfg Max Pos Open 100.0 DEGS
Alarm (Not) m/ Relay	2I Set F-T Pos F-Txxx.x° ↵ To ↑↓	3I Ma Out Mode % OF SPAN ↵ To↑↓	4I Move Counter 123456789
emperatur sing 25.1	2J Set Rotation CCW ↵ For CW	3J Alarm Mode LKO+ALM ↵ To ↑↓	4J Move Degrees 1234567.89
Motor Sens rent x.xx	2K Reset Logs ↵ To Clear Logs	3K Brake Enable ON ↵ To ↑↓	4K RS485 Message Counters: ↵ To↑↓
Motor Volts Vac	2L Reset Config ↵ For Defaults	3L Input Command 4-20ma ↵ To↑↓	
1M F-Terminal Input State ON	2M Test Alarm/ ↵ To Lockout (Reset)	3M RS-485 Mode Modbus ↵ To ↑↓	
1N 4-20ma LOS Input State OFF	2N Motor Power ON ↵ For OFF	3N Modbus Addr Address 255	
1O RS-485 Status ModBus	2O Lockout Move POSxxx.x° ↵ To ↑↓	3O Actuator ID ID#: 255	

Smartlink DS Assembly No. Pages

Butterfly valves

Configured item number				Valve body					Actuator						
Size	Flow capacity	Series		Body connection	Body seals	Body material	Body internals		Torque rating	Power input	Brake	Area classification	Display/keypad		Fluid
0100	S	DSCV	-	A	A	1	1	-	C	A	0	0	1	-	I

Size
0000 - Actuator only
0100 - 1"
0125 - 1-1/4"
0150 - 1-1/2"
0200 - 2"
0250 - 2-1/2"
0300 - 3"
0400 - 4"
0600 - 6"
0800 - 8"
1000 - 10"
1200 - 12"
1400 - 14"
1600 - 16"
1800 - 18"

Flow capacity
S - Standard

Series
DSCV - SMARTLINK® DS (Butterfly) Control Valve

Body connection
A - ANSI flange
M - "M" style flange
X - Special
U - Actuator only

Body seals [1]
A - Buna-N
B - Viton
X - Special
U - Actuator only

Body material
1 - Cast iron
2 - Carbon steel
3 - Brass
S - Stainless steel
X - Special
U - Actuator only

Body internals [2]
1 - Trim package 1
2 - Trim package 1, oxy clean
S - Trim package 2
6 - Trim package 2, oxy clean
X - Special
U - Actuator only

Torque rating
C - 300 in-lbs (33 N.m)
D - 900 in-lbs (101 N.m)
X - Special
U - Valve body only

Power input
A - 100-240 VAC
B - 24VDC
U - Valve body only

Brake
0 - No brake
1 - Brake
U - Valve body only

Area classification
0 - General purpose
1 - Hazardous location
U - Valve body only

Display / keypad
0 - No display / keypad
1 - Display / keypad
U - Valve body only

Fluid
A - 158 F/70 C max air
B - 350 F/177 C max air
C - 400 F/204 C max air
D - Butane gas
E - Coke oven gas
F - Digester gas
G - Landfill gas
H - Manufactured gas
I - Natural gas
J - Oxygen
K - Propane gas
L - Propane/butane blend gas
M - Refinery gas
N - Sour natural gas
O - Town gas
U - Actuator only
X - Special

[1] Buna-N used with cast iron and carbon steel bodies. Viton used with brass bodies.

[2] Trim package 1 used with cast iron and carbon steel bodies. Trim package 1, oxy cleaned used with brass bodies.

Ball valves

Configured Item Number				Valve Body					Actuator		
Valve Size	Flow Capacity	Series		Body Connection	Body Seals & Packing	Body Material	Body Internals		Torque Rating	Software Version	Language
0100	7	SLBV	-	B	E	2	1	-	1	1C	A

Size
0050 - .5"
0075 - .75"
0100 - 1"
0125 - 1.25"
0150 - 1.5"
0200 - 2"

Flow Capacity
1 - 1/32" Slot
2 - 1/16" Slot
3 - 1/8" Slot
4 - 3/16" Slot
5 - 1/4" Slot
6 - 30° V
7 - 60° V
8 - 90° V
9 - Round Port

Series
SLBV - SMARTLINK® Ball Valve

Body Connection
A - ANSI Flanged 150#
B - ANSI Threaded
X - Special [1]
" - Actuator Only

Body Seals & Packing
E - Teflon
X - Special [1]
" - Actuator Only

Body Material
2 - Carbon Steel
5 - Stainless Steel
X - Special [1]
" - Actuator Only

Body Internals
1 - Trim Package 1
X - Special [1]
" - Actuator Only

Torque Rating
1 - 300 in-lbs
X - Special
" - Valve Body Only

Software Version [2]
1C - Standard software
"" - Valve Body Only

Language
A - English
X - Special
" - Valve Body Only

[1] Please see page 4 for all available ball valve options. These will require a special configuration.

[2] The latest version is the default.

Trim Package Options and Typical Materials:

1 - 300 Series Stainless Steel Ball, 300 Series Stainless Steel Stem and Teflon Seat Rings