

NELES

Quartz™ limit switches and Axiom™ on/off valve controllers

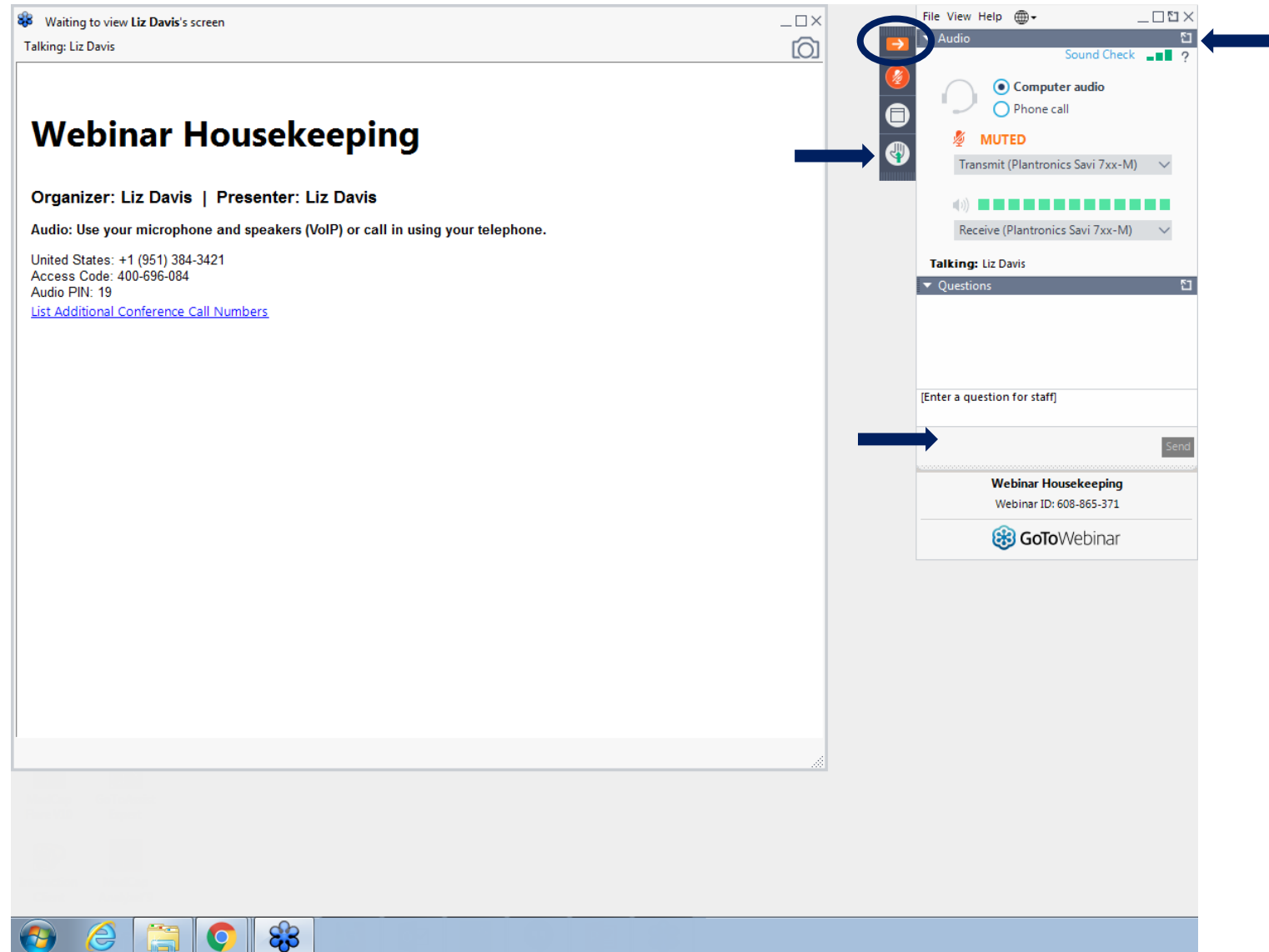
Welcome and thank you for participating in this event

April 27, 2021



In session features

NELES



In session features

NELES

▼ Questions

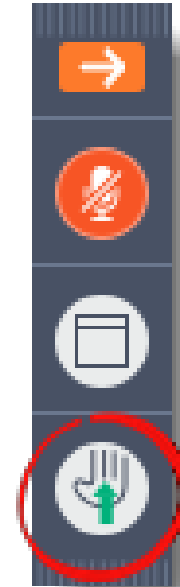
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Introductions

Presenter / Moderator / Panelist

- Bob Jenson
- Director of Technical Solutions / Product Manager
- With StoneL since 1995



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Check experience level of the audience

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Poll



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Quartz

Limit switches for on/off valves
For most Ex and Non Ex applications



Quartz

Overall capabilities

- Readily adaptable to most actuators
 - Mounting kits available to fit most quarter-turn / linear actuators
- Approved for most hazardous areas
 - Class I & II Div. 1, 2
 - Ex d IIC Zone 1, 2
 - Ex i IIC Zone 0,1,2
- Wide variety of electrical options
 - Solid State AC/DC, Reed, Mechanical, Intrinsically Safe, Fieldbus networks
- Rugged enclosure made of epoxy-coated anodized aluminum or 316L stainless steel
- QC Low temp models available with ratings to -55C

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QX - Al



QX - SS



QC



QN



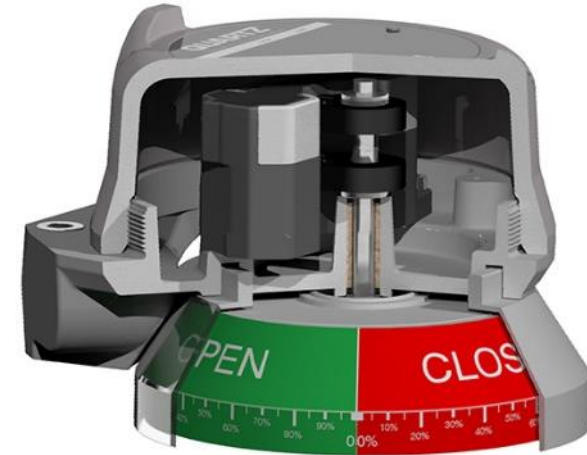
QG

Quartz

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Features and benefits

- Quick access screw-on cover is vapor tight
 - No lost screws or crimped gaskets
- Quick set cam system is secure and convenient
 - Push / Pull cam system, no set screws to vibrate loose or strip
- Stainless steel internal fasteners and plates
 - Corrosion resistant
- Stainless steel grounding inserts
 - Prevents intermittent contact in harsh environments

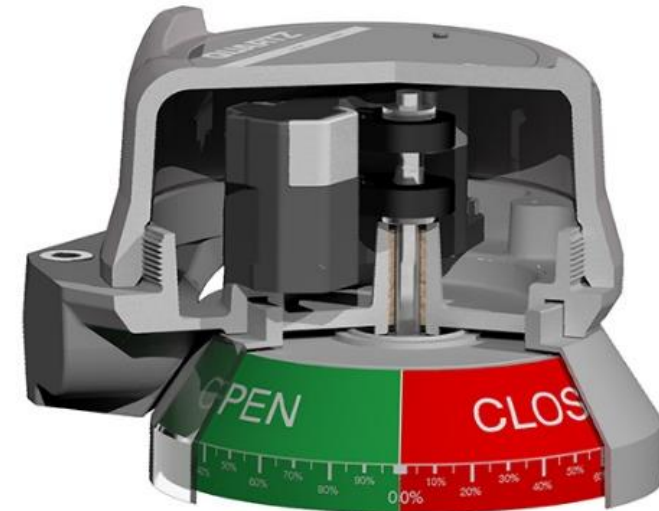


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Features and benefits

- O-ring sealed shaft at top and bottom
 - Limits external contaminants
- Up to 3 conduit entries for solenoid termination
 - Enables multiple solenoids
- Oil impregnated bronze bushing
 - Prevents shaft seizure
- Space saving visual indicator
 - Protected, easy to see
 - Low profile
- Convenient wiring with pre-labeled terminal strip
 - Easy field wiring

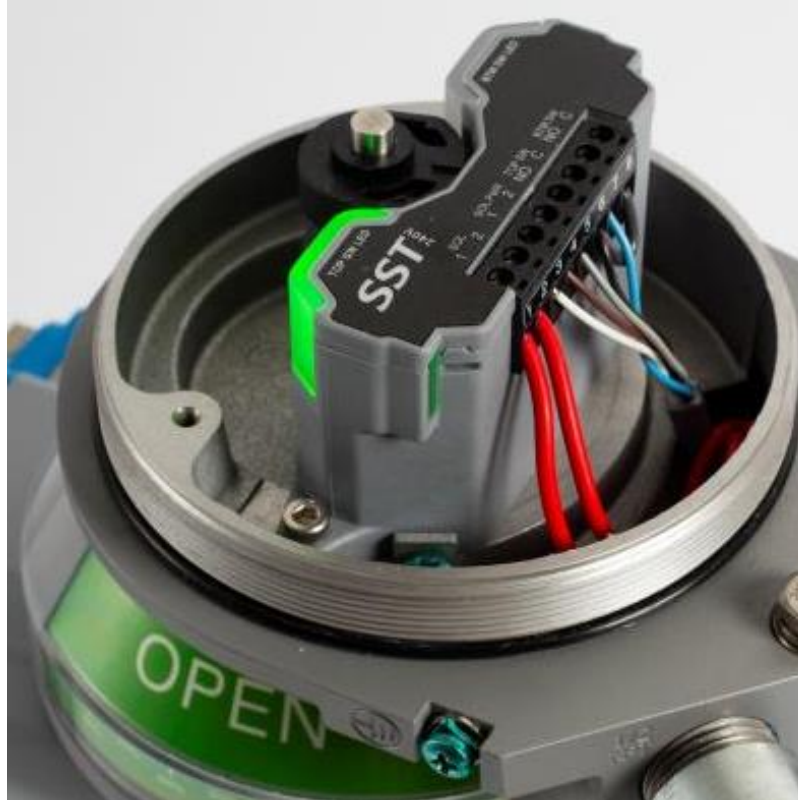


Quartz – Recent updates

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Mag sensors

- Enhanced position sensing technology
 - Mag Res sensor
 - **BRIGHT** LED indication
- Universal voltage capability
 - 24VDC – 250VAC
- Wide temp range
 - From -40C to +80C
 - Ultra-cold temp -55C option



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Position transmitters

- New non-contact transmitter with push button settings and LED indication now available
- Used on modulating valves to tell control system exact position of valve
 - Can be used on rotation less than 90 deg (37 deg min)
 - Cycle life: 2 million standard or 50 million high cycle
- Can be used for both quarter-turn and linear valves
 - Mounting kits easily convert linear to rotary rotation
- 4 to 20 mA output



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Quartz Digital 4-20mA Position Transmitter

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Features and Benefits

- Non-contact mag sensor → Long life in rough applications
- Easy push button calibration → Fast & easy Set-up / Calibration
- Red /Green LED's → Bold LED position indication
- Precision feedback → Reliable precision position confirmation
- Fully sealed and potted module → Durable and moisture tolerant
- QR code on sensor module → Easy access to installation manual



TO	4-20 mA non-contact with no switches
TT	4-20 mA non-contact with SST (35) NO switching sensor dual module
TR	4-20 mA non-contact with NAMUR (45) dual module (EN 60947-5-6; I.S.)



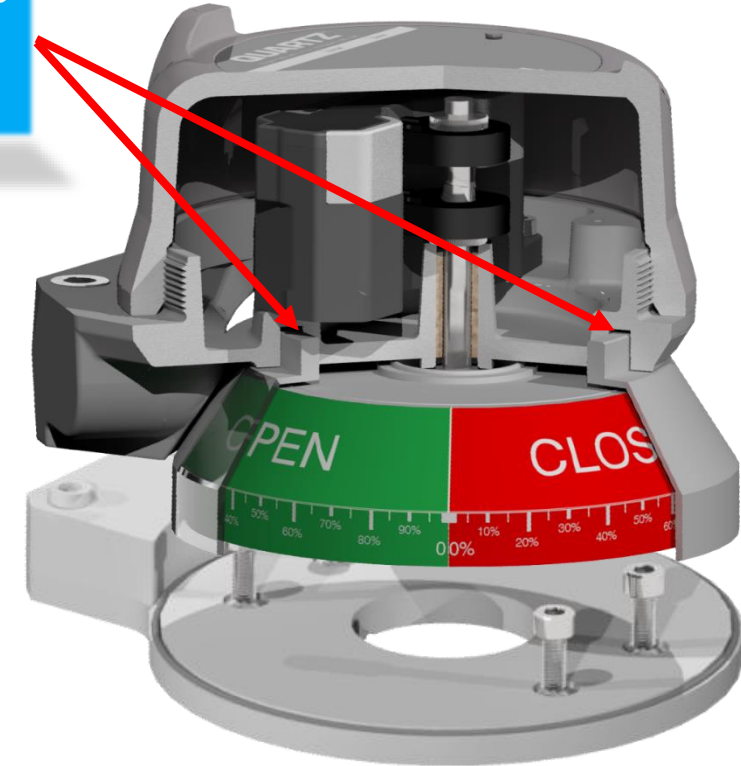
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Shaft options

- Neles Shaft = Output option “H”
- Short indicator = Output option “S”
- Extended VI = Output option “N”
- “N” option offers
 - Larger indication
 - Direct / flush mount when used with new mounting
 - Better moisture prevention
 - More tolerant to vibration

New o-ring seal at the top of the “N” and “H” VI cover (October 2020)



OUTPUT

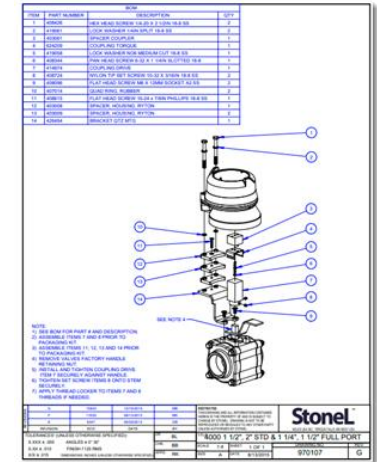
S	Short visual indicator
N	Extended visual indicator
H	Neles "H" coupler

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Mounting Kits

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- Neles “H” Shaft
 - Kits available from Helsinki, similar to ND9 kits
- Short indicator “S” shaft and Extended VI “N” shaft options
 - Kits available for > 150 brands of valves and actuators
 - www.stonel.mountingkitsonline.com



1 (218) 739-5774 U.S.A

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Mounting Kit Database

Select Valve or Actuator Brand
Search Mounting kit by kit number

1 Select the Brand
Neles

2 Select the Product
Quartz - Short and Extended Indicator

Brand	Model	Category	Product	Notes	Kit Number (Select to view diagram)
Neles	B1CU 11	1/4 Turn Actuator	Quartz - Short and Extended Indicator	Raised Namur size 1	ST960108
Neles	B1CU 13	VDI / VDE 3845 (NAMUR)	Quartz - Short and Extended Indicator	Raised Namur size 3	ST960115
Neles	B1CU 17	VDI / VDE 3845 (NAMUR)	Quartz - Short and Extended Indicator	Raised Namur size 3	ST960115
Neles	B1CU 20	VDI / VDE 3845 (NAMUR)	Quartz - Short and Extended Indicator	Raised Namur size 3	ST960115
Neles	B1CU 25	1/4 Turn Actuator	Quartz - Short and Extended Indicator		ST970168
Neles	B1CU 32	1/4 Turn Actuator	Quartz - Short and Extended Indicator		ST970169

Typecodes

Model selector	Model selector
SERIES	SERIES
QX Explosionproof dual modules and VCTs	QX Explosionproof proximity switches
FUNCTIONS	FUNCTIONS
Sensor/switching modules (proximity type)	Sensors
35 SST Universal NO switching sensor dual module	2E (2) P+F special 3-wire NPN sensor; NBB2-V3-E0-V5
45 NAMUR dual module (EN 60947-5-6; I.S.)	2F (2) PNP solid state 3-wire P+F sensor; NBB2-V3-E2-V5
Valve Communication Terminals (VCTs)	2G (2) SPDT Maxx-Guard (low current)
92 DeviceNet™	2H (2) SPDT Maxx-Guard (3 amp)
93 Foundation Fieldbus (bus powered; I.S.)	2L (2) SPST Maxx-Guard (LED)
96 AS-Interface	2P (2) SPST Maxx-Guard
97 AS-Interface (with extended addressing)	2S (2) SPDT Maxx-Guard (LED)
ENCLOSURE	4G (4) SPDT Maxx-Guard (low current)
B Aluminum North American (NEC/CEC)	4H (4) SPDT Maxx-Guard (3 amp)
K Aluminum International (IEC)	4L (4) SPST Maxx-Guard (LED)
G Aluminum Brazilian	4P (4) SPST Maxx-Guard
V Aluminum Russian	4S (4) SPDT Maxx-Guard (LED)
J* Stainless steel North American (NEC/CEC)	ENCLOSURE
74 HP with NAMUR (44) dual module (EN 60947-5-6; I.S.)	ENCLOSURE
TO 4-20 mA non-contact with no switches	K Aluminum International (IEC)
TT 4-20 mA non-contact with SST (35) NO switching sensor dual module	V Aluminum Russian
TR 4-20 mA non-contact with NAMUR (45) dual module (EN 60947-5-6; I.S.)	N* Stainless steel International (IEC)

Quartz QN

Typecodes

NELES

Model selector	
SERIES	
QN Noninvasive dual modules and VCTs	
FUNCTIONS	
Sensor/switching modules (proximity type)	
35	SST Universal NO switching sensor dual module
Valve Communication Terminals (VCTs)	
92	DeviceNet™
93	Foundation Fieldbus (bus powered) [intrinsically safe]
96	AS-Interface
97	AS-Interface with extended addressing
ENCLOSURE	
Clear cover	
P	North American (NEC/CEC)
A	International (IEC)
CONDUIT ENTRIES	
02	(1) 1/4" NPT & (1) 1/2" NPT
03	(1) 3/4" NPT & (2) 1/2" NPT
05	(2) M20
06	(3) M20
OUTPUT	
S	Short visual indicator
N	Extended visual indicator
H	Neles "H" coupler
VISUAL INDICATOR [see chart on page 17]	
DM	Red closed/green open
NM	Green closed/red open
SM	T-1 three way flow path
TM	T-2 three way flow path
UM	T-3 three way flow path
VM	T-4 three way flow path
WM	T-5 three way flow path
OM	No mechanical indication
XM	Special
AM	Continuous
Model number example	
QN 35 P 02 N DM -	OPTIONAL
MODEL NUMBER	
Mounting hardware required and sold separately.	
PARTNERSHIP ID	
Some models may include 5-digit identification suffix.	

Model selector	
SERIES	
QN Noninvasive proximity switches	
FUNCTION	
Sensors	
2F	(2) PNP solid state 3-wire P+F sensor; NB82-V3-E2-V5
2G	(2) SPDT Maxo-Guard (low current)
2H	(2) SPDT Maxo-Guard (3 amp)
2L	(2) SPST Maxo-Guard (LED)
2P	(2) SPST Maxo-Guard
2S	(2) SPDT Maxo-Guard (LED)
4G	(4) SPDT Maxo-Guard (low current)
4H	(4) SPDT Maxo-Guard (3 amp)
4L	(4) SPST Maxo-Guard (LED)
4P	(4) SPST Maxo-Guard
4S	(4) SPDT Maxo-Guard (LED)
4X	(4) SST sensor (LED)
ENCLOSURE	
Clear cover	
P	North American (NEC/CEC)
A	International (IEC)
CONDUIT ENTRIES	
02	(1) 1/4" NPT & (1) 1/2" NPT
03	(1) 3/4" NPT & (2) 1/2" NPT
05	(2) M20
06	(3) M20
OUTPUT	
S	Short visual indicator
N	Extended visual indicator
H	Neles "H" coupler
VISUAL INDICATOR [see chart on page 17]	
DM	Red closed/green open
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SM	T-1 three way flow path
TM	T-2 three way flow path
UM	T-3 three way flow path
VM	T-4 three way flow path
WM	T-5 three way flow path
OM	No mechanical indication
XM	Special
AM	Continuous
Model number example	
QN 2G P 02 N DM -	OPTIONAL
MODEL NUMBER	
Mounting hardware required and sold separately.	
PARTNERSHIP ID	
Some models may include 5-digit identification suffix.	

Model selector	
SERIES	
QN Intrinsically safe (I.S.) proximity switches and position transmitters	
FUNCTIONS	
Sensor/switching modules (proximity type)	
4S	NAMUR dual module (EN 60947-5-6; I.S.)
Sensor	
2A	(2) P+F; NI2-12GK-SN
2B	(2) P+F; NI5-30GK-S1N
2I	(2) SPST (passive)
2M	(2) SPDT (passive)
2N	(2) P+F NAMUR sensor; NI2-V3-N
4I	(4) SPST (passive)
4M	(4) SPDT (passive)
4N	(4) P+F NAMUR sensor; NI2-V3-N
Position transmitters	
50	Standard with no switches
70	High performance (HP) with no switches
TO	4-20 mA non-contact with no switches
TR	4-20 mA non-contact with NAMUR (4S) dual module (EN 60947-5-6; I.S.)
ENCLOSURE	
Clear cover	
P	North American (NEC/CEC)
H	Russian
A	International (IEC)
Aluminum cover [not explosion proof]	
B	North American (NEC/CEC)
K	International (IEC)
G	Brazilian
L	Russian
CONDUIT ENTRIES	
02	(1) 1/4" NPT & (1) 1/2" NPT
03	(1) 3/4" NPT & (2) 1/2" NPT
05	(2) M20
06	(3) M20
OUTPUT	
S	Short visual indicator
N	Extended visual indicator
H	Neles "H" coupler
VISUAL INDICATOR [see chart on page 17]	
DM	Red closed/green open
NM	Green closed/red open
SM	T-1 three way flow path
TM	T-2 three way flow path
UM	T-3 three way flow path
VM	T-4 three way flow path
WM	T-5 three way flow path
OM	No mechanical indication
XM	Special
AM	Continuous
Model number example	
QN 4S P 02 N DM -	OPTIONAL
MODEL NUMBER	
Mounting hardware required and sold separately.	
PARTNERSHIP ID	
Some models may include 5-digit identification suffix.	

Model selector	
SERIES	
QN Noninvasive proximity switches and position transmitters	
FUNCTIONS	
Position transmitters	
50	Standard with no switches
5G	Standard with (2) SPDT Maxo-Guard (low current)
70	High performance (HP) with no switches
7G	High performance (HP) with (2) SPDT Maxo-Guard (low current)
TO	4-20 mA non-contact with no switches
TT	4-20 mA non-contact with SST (3S) NO switching sensor dual module
ENCLOSURE	
Clear cover	
P	North American (NEC/CEC)
A	International (IEC)
CONDUIT ENTRIES	
02	(1) 1/4" NPT & (1) 1/2" NPT
03	(1) 3/4" NPT & (2) 1/2" NPT
05	(2) M20
06	(3) M20
OUTPUT	
S	Short visual indicator
N	Extended visual indicator
H	Neles "H" coupler
VISUAL INDICATOR [see chart on page 17]	
DM	Red closed/green open
NM	Green closed/red open
SM	T-1 three way flow path
TM	T-2 three way flow path
UM	T-3 three way flow path
VM	T-4 three way flow path
WM	T-5 three way flow path
OM	No mechanical indication
XM	Special
AM	Continuous
Model number example	
QN 50 P 02 N DM -	OPTIONAL
MODEL NUMBER	
Mounting hardware required and sold separately.	
PARTNERSHIP ID	
Some models may include 5-digit identification suffix.	

Quartz QC

Typecodes

NELES

Model selector	
SERIES	
QC	Low temperature, explosionproof dual modules
FUNCTIONS	
Sensor/switching modules (proximity type)	
35	SST Universal NO switching sensor dual module
45	NAMUR dual module (EN 60947-5-6; I.S.)
ENCLOSURE	
B	Aluminum North American (NEC/CEC)
K	Aluminum International (IEC)
V	Aluminum Russian
J	Stainless steel North American (NEC/CEC)
N	Stainless steel International (IEC)
L	Stainless steel Russian
CONDUIT ENTRIES	
03	(1) 3/4" NPT & (2) 1/2" NPT
06	(3) M20
OUTPUT	
S	Short visual indicator
N	Extended visual indicator
H	Neles "H" coupler
VISUAL INDICATOR	
DM	Red closed/green open
NM	Green closed/red open
SM	T-1 three way flow path
TM	T-2 three way flow path
UM	T-3 three way flow path
VM	T-4 three way flow path
WM	T-5 three way flow path
OM	No mechanical indication
XM	Special
AM	Continuous
Model number example	
QC 35 B 02 N DM -	OPTIONAL
MODEL NUMBER	
Mounting hardware required and sold separately.	
PARTNERSHIP ID	
Some models may include 5-digit identification suffix.	

Model selector	
SERIES	
QC	Low temperature, explosionproof mechanical switches
FUNCTIONS	
Mechanical switches	
2V	(2) SPDT switches
2W	(2) SPDT switches, gold contact
4V	(4) SPDT switches
4W	(4) SPDT switches, gold contact
ENCLOSURE	
B	Aluminum North American (NEC/CEC)
K	Aluminum International (IEC)
V	Aluminum Russian
J	Stainless steel North American (NEC/CEC)
N	Stainless steel International (IEC)
L	Stainless steel Russian
CONDUIT ENTRIES	
03	(1) 3/4" NPT & (2) 1/2" NPT
06	(3) M20
OUTPUT	
S	Short visual indicator
N	Extended visual indicator
H	Neles "H" coupler
VISUAL INDICATOR	
DM	Red closed/green open
NM	Green closed/red open
SM	T-1 three way flow path
TM	T-2 three way flow path
UM	T-3 three way flow path
VM	T-4 three way flow path
WM	T-5 three way flow path
OM	No mechanical indication
XM	Special
AM	Continuous
Model number example	
QC 2V B 02 N DM -	OPTIONAL
MODEL NUMBER	
Mounting hardware required and sold separately.	
PARTNERSHIP ID	
Some models may include 5-digit identification suffix.	

Quartz QG

Typecodes

NELES

Model selector

SERIES

QG General purpose mechanical switches (clear cover)

FUNCTION

Mechanical switches

2V (2) SPDT switches

2W (2) SPDT switches, gold contact

4V (4) SPDT switches

4W (4) SPDT switches, gold contact

14 (2) DPDT switches

ENCLOSURE

P General purpose, universal

CONDUIT ENTRIES

02 (1) 1/4" NPT & (1) 1/8" NPT

03 (1) 1/4" NPT & (2) 1/8" NPT

05 (2) M20

06 (3) M20

OUTPUT

S Short visual indicator

N Extended visual indicator

H Neles "H" coupler

VISUAL INDICATOR

DM Red closed/green open

NM Green closed/red open

SM T-1 three way flow path

TM T-2 three way flow path

UM T-3 three way flow path

VM T-4 three way flow path

WM T-5 three way flow path

OM No mechanical indication

XM Special

AM Continuous

Model number example

QG 2V P 02 N DM -

OPTIONAL

MODEL NUMBER

Mounting hardware required and sold separately.

PARTNERSHIP ID

Some models may include 5-digit identification suffix.

NELES

Axiom AN

Integrated limit switches and
SOV pneumatic control for on/off valves
For most Exi and Non Ex application

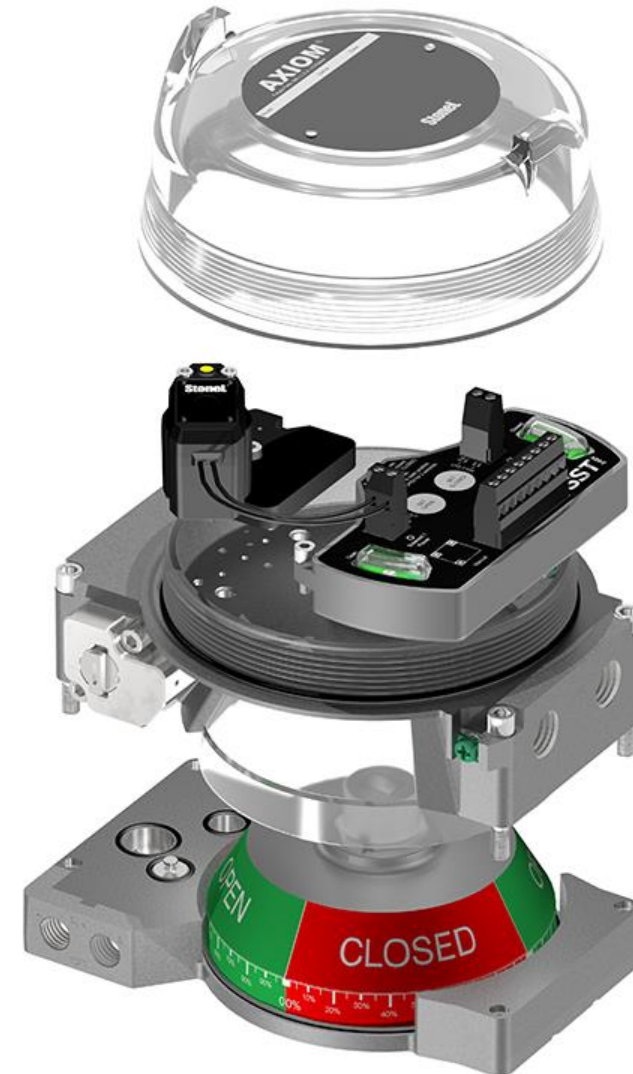


Axiom AN

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Overall construction

- Rugged epoxy-coated anodized aluminum Housing / Manifold with Polycarbonate cover
 - Corrosion resistant
- Internal manual override on pilot
 - Easy to operate manually
- High visibility, space saving visual mechanical indication
 - Easy to see from distance



Axiom AN

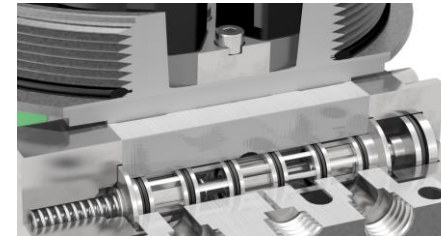
NELES

Overall capabilities

- Non-contact all solid state “C-module” position sensing system with push button settings
 - Easy set point adjustment
 - No cams or set screws to adjust
- Ultra reliable Mag sensors
- High-flow integrated pneumatic spool valve
 - Exceptional tolerance to dirty air and high flow rate (AN Cv = 0.8 or 1.2)
 - Ideal for most standard 1/4 turn on/off valve actuators
- Space-saving efficient design
 - Consolidates all monitoring into a smaller automated valve package
- Non-contact drive system
 - No shaft or bushings to bind or wear out



Push button setting



Pneumatic control

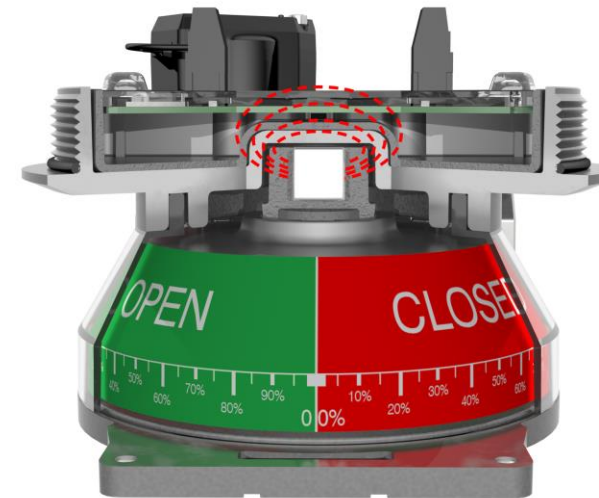


Axiom C-Module

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Sensing and communication

- Push button settings
 - Lock in open and closed valve position with $< 1^\circ$ of repeatability
- Solenoid valve power LED's
- High visibility, dual LED indicators
- Non-contact drive system
 - Not affected by actuator shaft wear or eccentricity; no bushings or shaft to bind or wear
- Solid state sensors
 - Enables 24VDC, 120 / 240 VAC monitoring feedback and solenoid input.
 - Wide variety of electronic monitoring and control options
 - Inputs can be combined

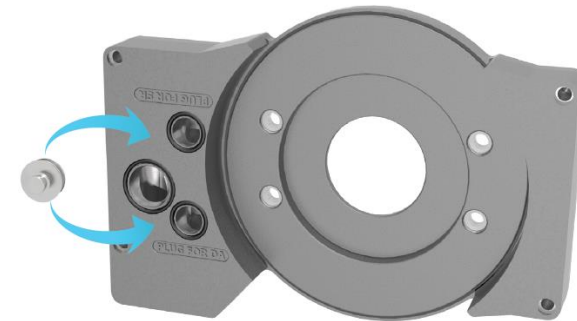
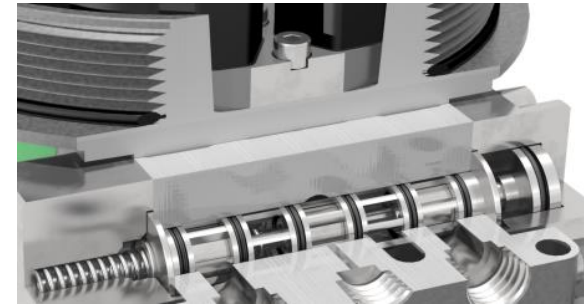


Axiom AN

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Integrated pneumatic control

- 5-way, 2-position configuration
 - Capable of operating both double-acting and spring return actuators
 - Cycle life >1 million cycles; easy to replace o-rings for additional life
- Pre-filtered burn-out proof solenoid pilot
 - Low power consumption & short circuit protection
- Rebreather capability
 - Prevents contaminants from entering spring side of actuator
- Standard internal & optional external overrides
 - Enable manual repositioning of process valve
- Single or dual coil shuttle piston available
 - Suitable for spring return or fail last actuators



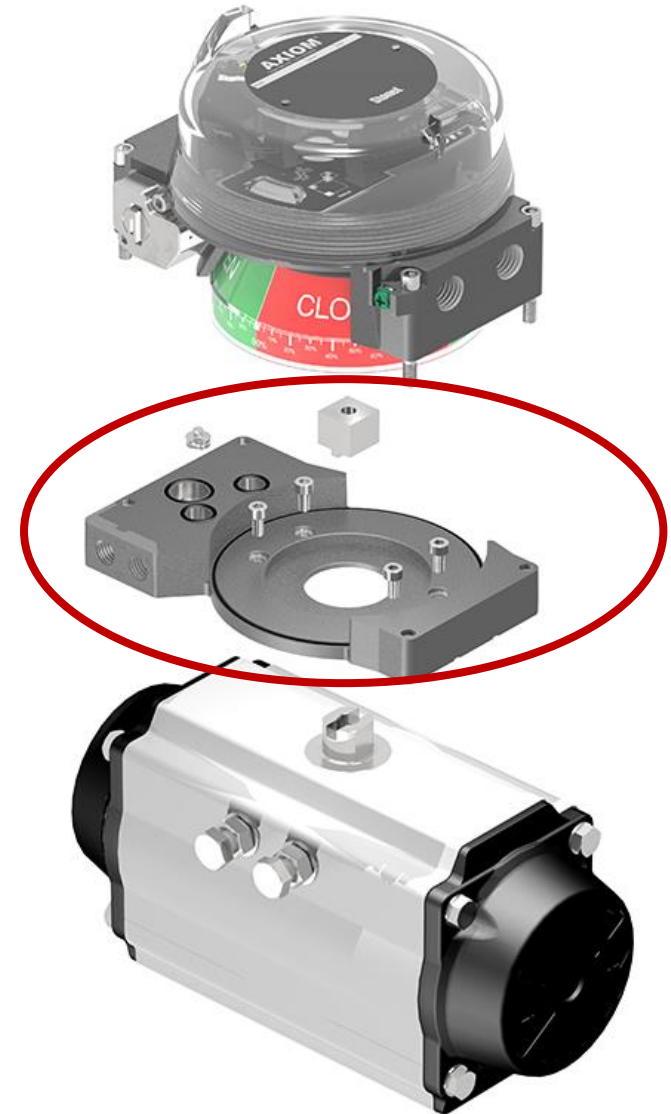
Conveniently remove and reinsert pneumatic plug as needed to select operation for spring return or double acting actuators

Axiom

NELES

Mounting/manifold system

- Adapts directly to VDI/VDE 3845 standard (NAMUR)
 - No additional mounting needed, low profile
 - Adaptability to most $\frac{1}{4}$ turn actuators
- All fasteners and coupler are 316 SS
 - Corrosion resistant
- Unit may be removed by turning off pneumatics and unbolting from actuator
 - No electrical disconnects or power down are needed
- AN, AX and AMI mounting/manifold are **NOT** interchangeable



Axiom AN Versions

Model options

NELES

Model selector		
SERIES		
AN Nonincendive or intrinsically safe		
FUNCTIONS		
Sensor/ switching modules		Valve communication Terminals (VCTs)
355	SST Universal; 20 - 250 volt (NO sensor)	92S DeviceNet™
455	NAMUR module (EN 60947-5-6; I.S.) [not available with any dual pilot option]	92W DeviceNet™ with Wireless Link
		97S AS-Interface with extended addressing
		97W AS-Interface with extended addressing and Wireless Link
PNEUMATIC OVERRIDE / CV [standard pneumatic pilot and valve -40° C to 80° C]		
For single pilot		For dual pilot
1N	Internal momentary override only / 0.8 Cv	2N Internal momentary override only / 0.8 Cv
1M	External momentary & internal override / 0.8 Cv	2M External momentary & internal override / 0.8 Cv
1L	External latching & internal override / 0.8 Cv	2L External latching & internal override / 0.8 Cv
1E	Internal momentary override only / 1.2 Cv	2E Internal momentary override only / 1.2 Cv
1Y	External momentary & internal override / 1.2 Cv	2Y External momentary & internal override / 1.2 Cv
1G	External latching & internal override / 1.2 Cv	2G External latching & internal override / 1.2 Cv
9N	No pneumatics	
ENCLOSURE		
Clear cover		Aluminum cover
C	North American (NEC/CEC)	A North American (NEC/CEC)
D	International (IEC)	V International (IEC)
CONDUIT/CONNECTORS		
Standard		Mini-connectors
02	(2) 1/2" NPT	10 (1) 4-pin
05	(2) M20	11 (1) 5-pin
		19 (1) 6-pin
		20 (1) 7-pin
		21 (1) 8-pin
		Micro-connectors (M12)
		13 (1) 4-pin
		15 (1) 5-pin
		17 (1) 6-pin
		18 (1) 8-pin
VISUAL INDICATOR		
RM	Red closed/green open	1M Three-way 1
GM	Green closed/red open	2M Three-way 2
		XM Special



DeviceNet™

Visual indicator designations

DESIGNATION	0°	90°
R	RED CLOSED	GREEN OPEN
G	GREEN CLOSED	RED OPEN
1		
2		
X	Specialty configuration - please consult factory	

Axiom AN vs the competition

Competition

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Competition

Common Issues

- Massive bulky enclosure typically 5" to 10" above actuator surface with mounting
- Double-bushings on shaft (to visual indicator and to housing)
- Painted aluminum enclosure
- Large number of bolts to secure cover and attach to actuator
- O-ring seals on each shaft bushing



NELES

Axiom with Wireless Link

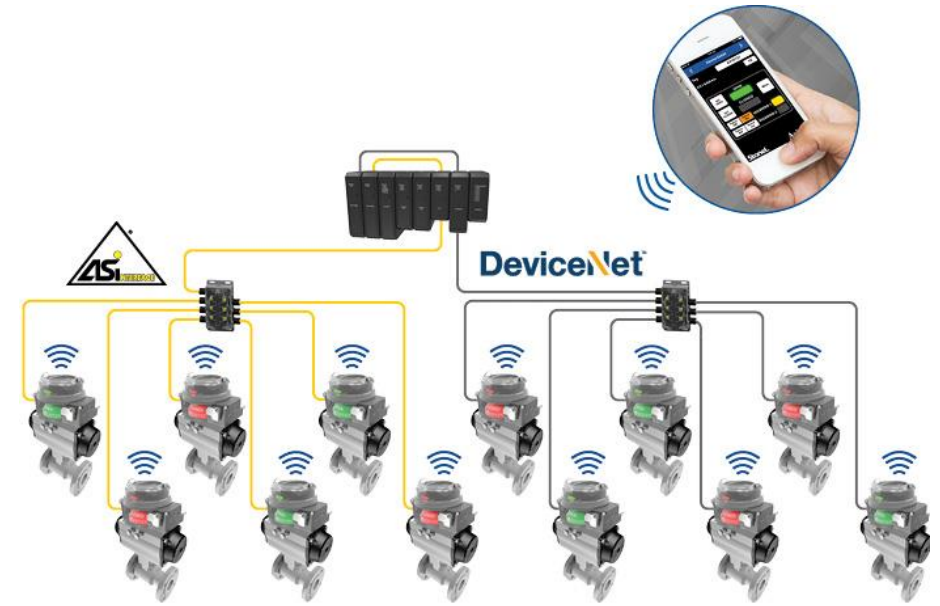
Easy commissioning and remote access to
powerful valve diagnostics



The need

Accessing automated valves in the field

- Many automated valves are difficult to access
- Changes in switch settings must have enclosures opened
- Plant personnel may be endangered in order to gain direct access.
- Addresses for VCTs are difficult to view
- Diagnostic information is difficult to retrieve or not available
- Automated valve part models and serial numbers are difficult to catalog and retrieve with assembly tag number.



Axiom AN with Wireless Link

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Axiom AN Wireless Link

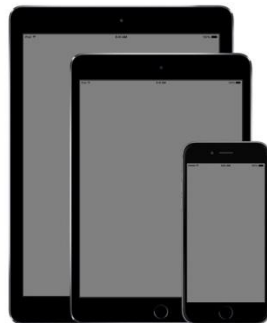
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Convenient, safe link from up to 50 meters!

- Uses Bluetooth® wireless technology
- The Axiom AN with AS-Interface and DeviceNet are available as a Bluetooth® enabled device
- Interfaces to Apple devices including
 - iPhone® version 4S or later
 - iPad® version 3.0 and later
 - iPad™ mini all versions



DeviceNet™

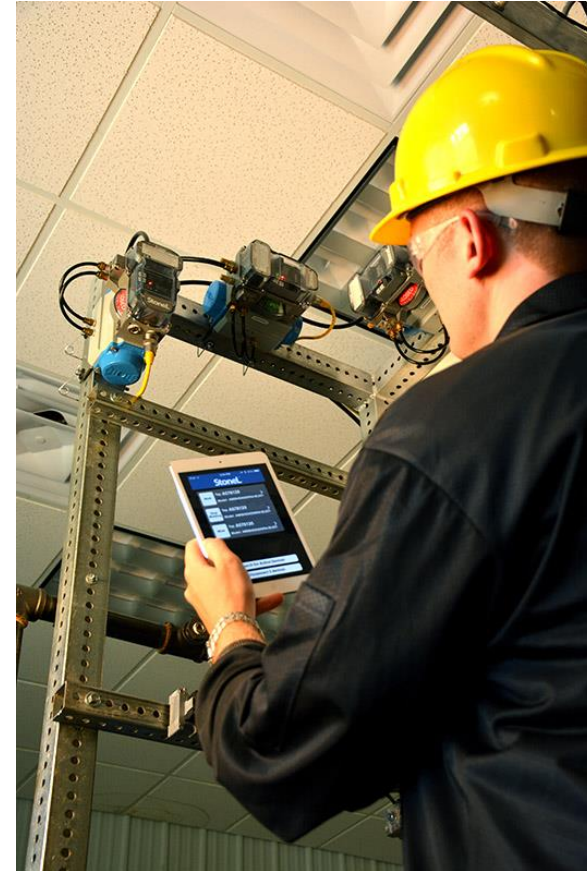


Axiom AN with Wireless Link

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Benefits

1. Lower network support costs
 - *Standard 24 VDC power supply may be used*
 - *No special hand-helds or gateway/masters required*
2. Increased safety
 - *No climbing or reaching is needed to access or manually control*
 - *Able to keep a safe distance from equipment or confined spaces*
3. Reduce maintenance costs
 - *Access multiple valves from one location*
 - *Retrieve assembly models and serial numbers with tag*
4. Faster network commissioning & start up time
 - *Addresses may be set in the field with tag numbers*
 - *Functionality may be quickly confirmed for each assembly*

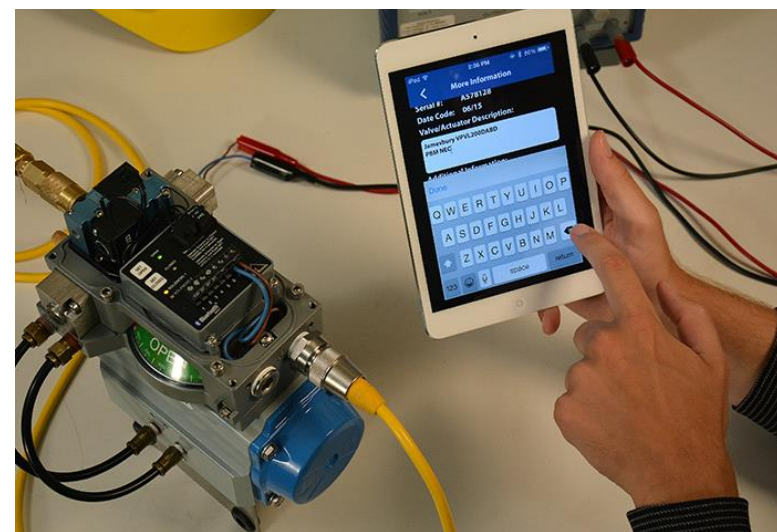
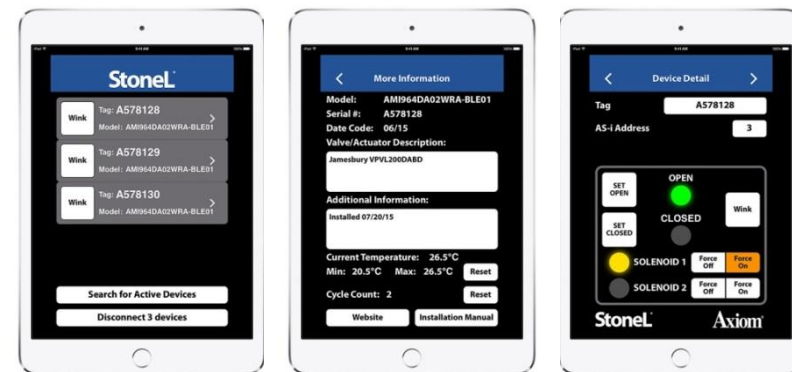


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Capabilities

- Remote monitoring
 - Switch positions (Open & Closed)
 - Solenoid valve status
 - Network address
 - Electronics actual, maximum and minimum temperatures
 - Cycle count
- Remotely operate/change (if enabled)
 - Switch positions (Open & Closed)
 - Solenoid valve
 - Network address

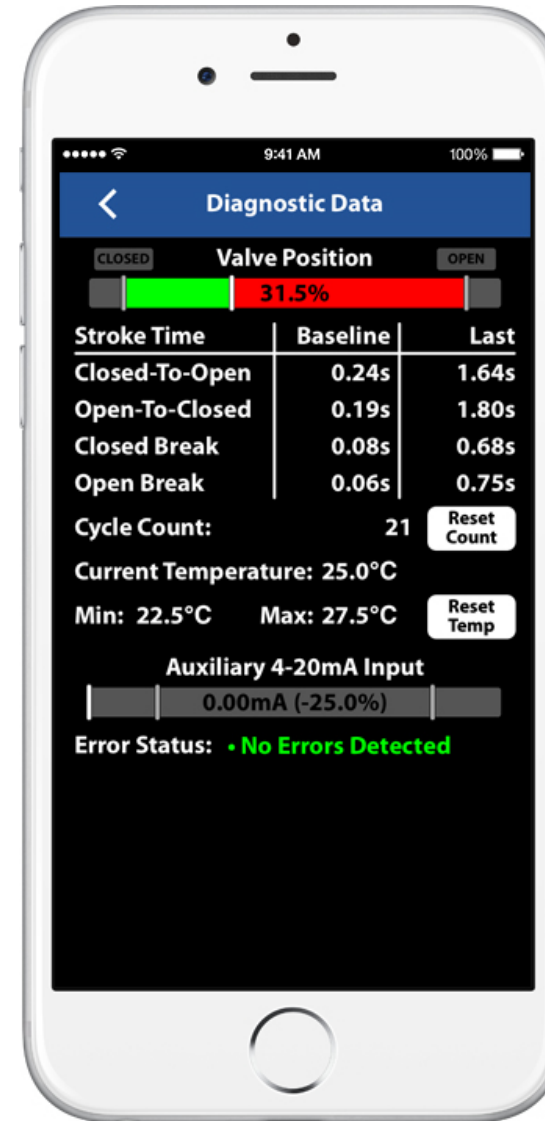


Axiom AN with Wireless Link

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Additional Capabilities

- Actual valve position (%)
- Stroke times
 - Baseline and last for comparison
- Breakaway times
 - Baseline and last for comparison
- Auxiliary input state indication (if applicable)



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Capabilities

- Axiom model, serial number entered during manufacturing at the factory
- Valve assembly identification
- Maintenance or other information
- Quick links to the Axiom installation manual & the product web site page



Axiom AN with Wireless Link

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Import and Export to MS Excel

- Save time during commissioning
 - Set address, tag, text info to all devices within range.
- Retrieve diagnostic and status information from all devices in range to view in Excel

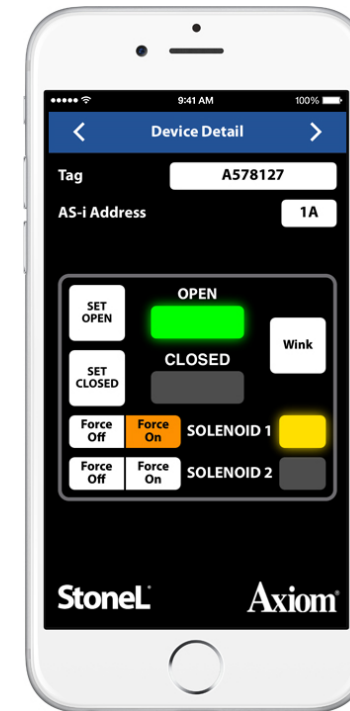


Axiom AN with Wireless Link

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Operation & Set-up

- AS-Interface system is set-up and operates same as standard AS-i
- Wireless link application:
 1. Download on the App store (free download)
 2. Start the application in your Apple device
 3. Touch “Search for active devices” (all devices will come up that are powered-up in range)
 4. Push wink to positively confirm device (Open & Closed LEDs will flash)
 5. Drill into specific device by touching arrow of desired tag



Axiom AN with Wireless Link

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Security

- Devices are **locked** in normal operation. No address, switch setting or solenoid control changes may be made.
- Monitoring capability is fully enabled at all times
- Axiom is unlocked for remote setting and control when:
 - Only 24 VDC signal is applied (no communication)
 - AS-I power supply jumper set to “IR addressing mode”
 - Gateway set to off-line mode
- Individual devices can be unlocked by writing an output bit from the control system



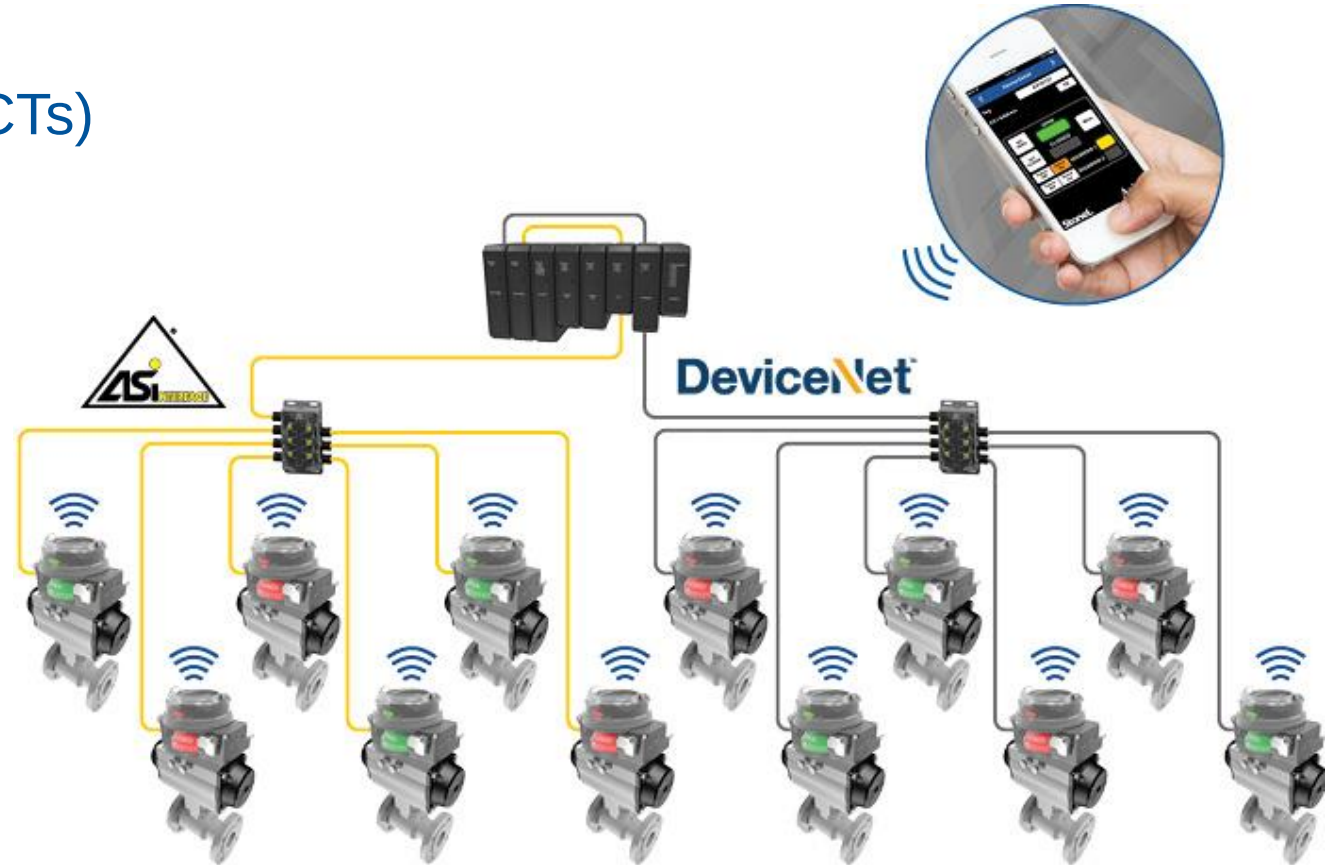
Axiom AN Versions

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Wireless Link

Valve Communication Terminals (VCTs)

- (92W) DeviceNet with Wireless Link
- (97W) AS-Interface with Wireless Link



Poll



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Axiom AX

Integrated limit switches and
SOV pneumatic control for on/off valves
For Exd and harsh environmental applications



Axiom AX

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Overall capabilities

- Non-contact all solid state “C-module” position sensing system with push button settings
 - Easy set point adjustment
 - No cams or set screws to adjust
- High-flow integrated pneumatic spool valve
 - Exceptional tolerance to dirty air and high flow rate (AMI Cv = 0.7, AX Cv = 0.7 or 1.2) model dependant
 - ideal for most standard $\frac{1}{4}$ turn on/off valve actuators
- Space-saving efficient design
 - Consolidates all monitoring into a smaller automated valve package
- Non-contact drive system
 - No shaft or bushings to bind or wear out

Push button setting



Pneumatic control



Axiom AX

NELES

Overall construction

- Rugged epoxy-coated anodized aluminum or 316L stainless steel enclosure and mounting/manifold
 - Corrosion resistant
- Internal manual override on pilot
 - Easy to operate manually
- High visibility, space saving visual mechanical indication
 - Easy to see from distance



Axiom AX

Integrated pneumatic control

- 5-way, 2-position configuration
 - Capable of operating both double-acting and spring return actuators
 - Cycle life >1 million cycles; easy to replace o-rings for additional life
- Pre-filtered burn-out proof solenoid pilot
 - Low power consumption & short circuit protection
- Rebreather capability
 - Prevents contaminants from entering spring side of actuator
- Standard internal & optional external overrides
 - Enable manual repositioning of process valve
- Single or dual coil shuttle piston available
 - Suitable for spring return or fail last actuators

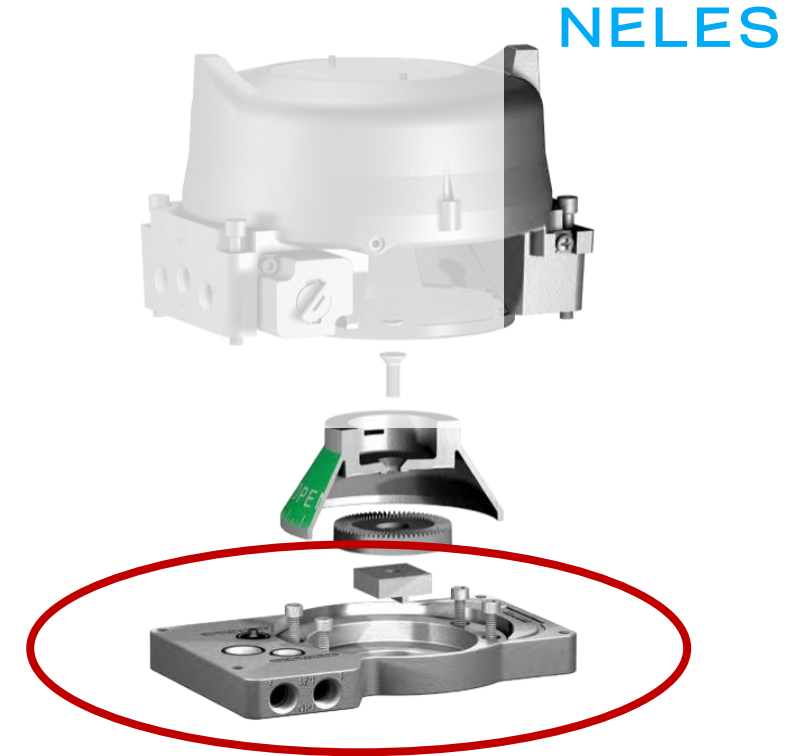
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Axiom AX

Mounting/manifold system

- Adapts directly to VDI/VDE 3845 standard (NAMUR)
 - No additional mounting needed, low profile
 - Adaptability to most $\frac{1}{4}$ turn actuators
- All fasteners and coupler are 316 SS
 - Corrosion resistant
- AX AN and AMI mounting/manifolds are **NOT** interchangeable

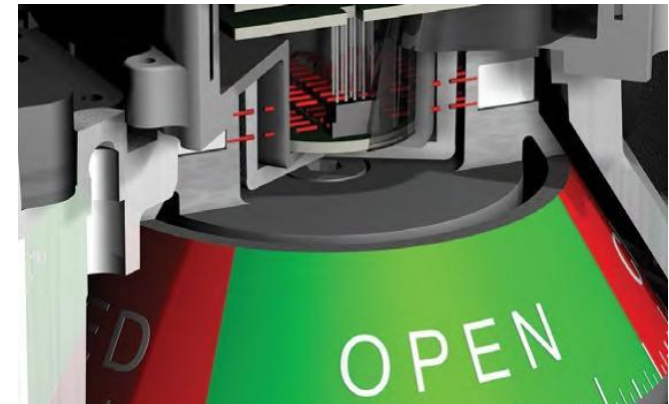


Axiom AX C-Module

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Sensing and communication

- Push button settings
 - Lock in open and closed valve position with $< 1^\circ$ of repeatability
- Non-contact drive system
 - Not affected by actuator shaft wear or eccentricity; no bushings or shaft to bind or wear
- Solid state sensors
 - Enables 24VDC, 120 / 240 VAC monitoring feedback and solenoid input.
 - Wide variety of electronic monitoring and control options



Axiom AX

Model code options

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Model selector			
SERIES			
AX Explosionproof			
FUNCTIONS			
Sensor/switching modules		Valve communication Terminals (VCTs)	
33S	SST NO sensor [select pneumatic valve option 1H or 2H]	71D	4-20 mA HART with diagnostics [select pneumatic valve option 1D or 1E]
35S	SST 240 V Universal (NO sensor) [select valve option 1H or 2H]	92S	DeviceNet™ [select pneumatic valve option 1D or 2D]
44S	NAMUR module (EN 60947-5-6; I.S.) [select pneumatic valve option 1E or 2E]	93S	Foundation Fieldbus (bus powered; I.S.) [select pneumatic valve option 1A or 2A]
80S	Expeditor [select pneumatic valve option 2D or 2E; available with pneumatic temperature option S only]	96S	AS-Interface [select pneumatic valve option 1D or 2D]
		96D	AS-Interface with diagnostics [select pneumatic valve option 1D]
		97S	AS-Interface with extended addressing [select pneumatic valve option 1D or 2D]
PNEUMATIC VALVE			
Single pilot		Dual pilot	
1H	Universal voltage solenoid	2H	Universal voltage solenoid
1D	0.5 W 24 VDC solenoid	2D	0.5 W 24 VDC solenoid
1E	12 VDC I.S. solenoid	2E	12 VDC I.S. solenoid
1A	Piezo	2A	Piezo
PNEUMATIC OVERRIDE / CV			
For single pilot		For dual pilot	
N	Internal momentary override only / 0.7 Cv	N	Internal momentary override only / 0.7 Cv
M	External momentary & internal override / 0.7 Cv	M	External momentary & internal override / 0.7 Cv
L	External latching & internal override / 0.7 Cv	L	External latching & internal override / 0.7 Cv
E	Internal momentary override only / 1.2 Cv	E	Internal momentary override only / 1.2 Cv
Y	External momentary & internal override / 1.2 Cv	Y	External momentary & internal override / 1.2 Cv
G	External latching & internal override / 1.2 Cv	G	External latching & internal override / 1.2 Cv
PNEUMATIC TEMPERATURE			
For single pilot		For dual pilot	
S	Standard	S	Standard
T	Extended [select pneumatic valve option _H_, _D_, or E]	T	Extended [select pneumatic valve option _H_, _D_, or E]
ENCLOSURE			
Epoxy-coated aluminum		Stainless steel	
A	North American (NEC/CEC)	S	North American (NEC/CEC)
V	International (IEC)	T	International (IEC)
L	Brazilian	M	Brazilian
CONDUIT/CONNECTORS			
02	(2) 3/4"NPT		
05	(2) M25		
VISUAL INDICATOR			
RM	Red closed/green open	1M	Three-way 1
GM	Green closed/red open	2M	Three-way 2
		XM	Special



DeviceNet™

HART
COMMUNICATION PROTOCOL



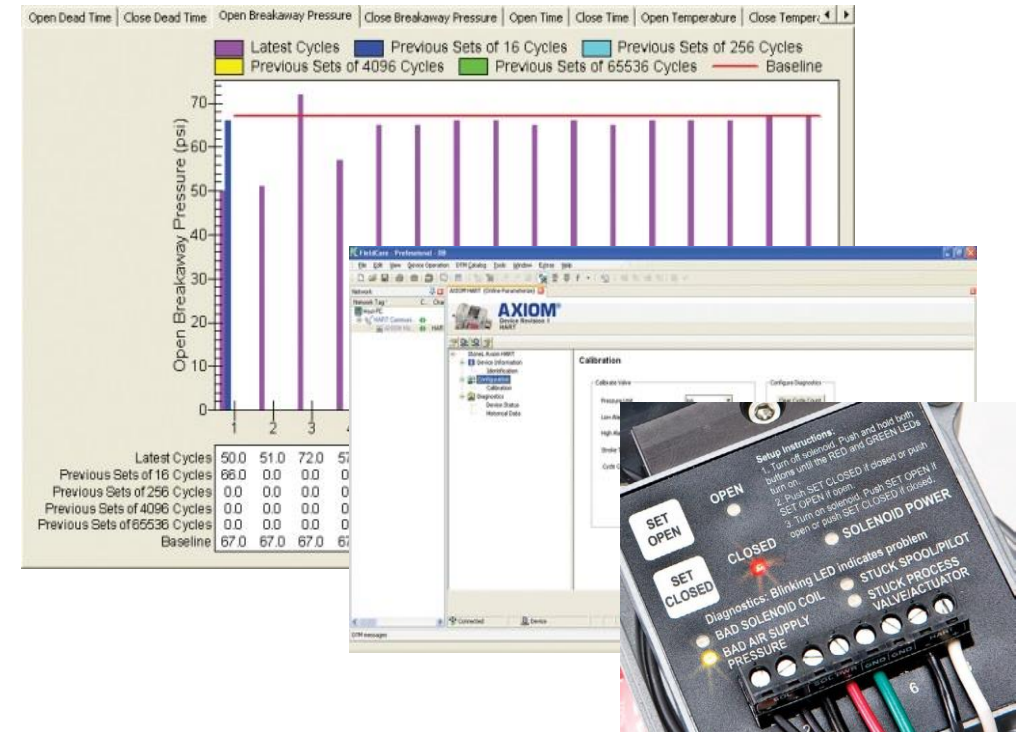
Axiom AX

Diagnostics versions

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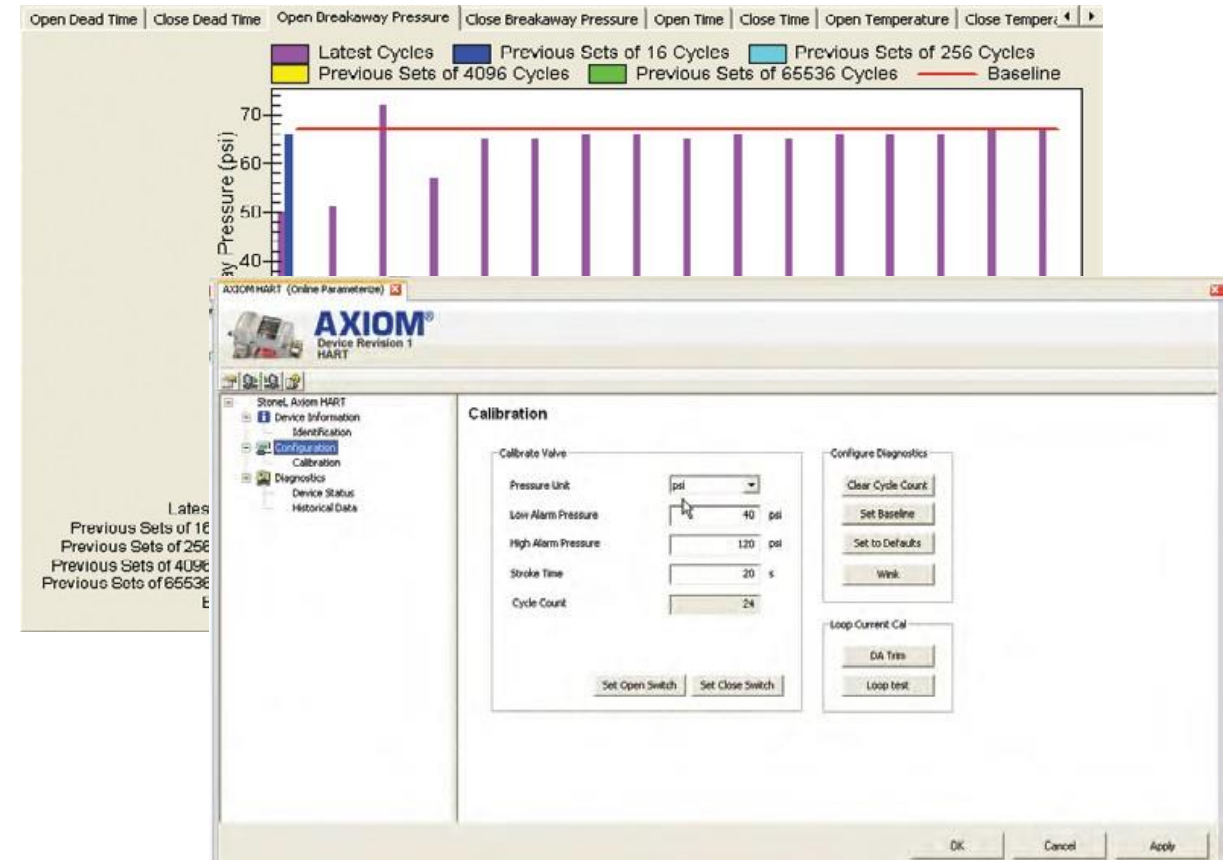
- Diagnostics – On-board diagnostics to predict automated valve malfunctions enabled by integrated:
 - Pressure sensing
 - Continuous position sensing
 - Current and voltage sensing
- Diagnostic alerts and capabilities
 - Low pneumatic supply pressure
 - Malfunctioning solenoid
 - Stuck spool or pilot valve
- Diagnostic information also displayed locally
 - Available for HART (71) and AS-Interface (96)
 - No special software required for DCS
 - Reduce plant downtime with predictive maintenance



Axiom HART

Diagnostics

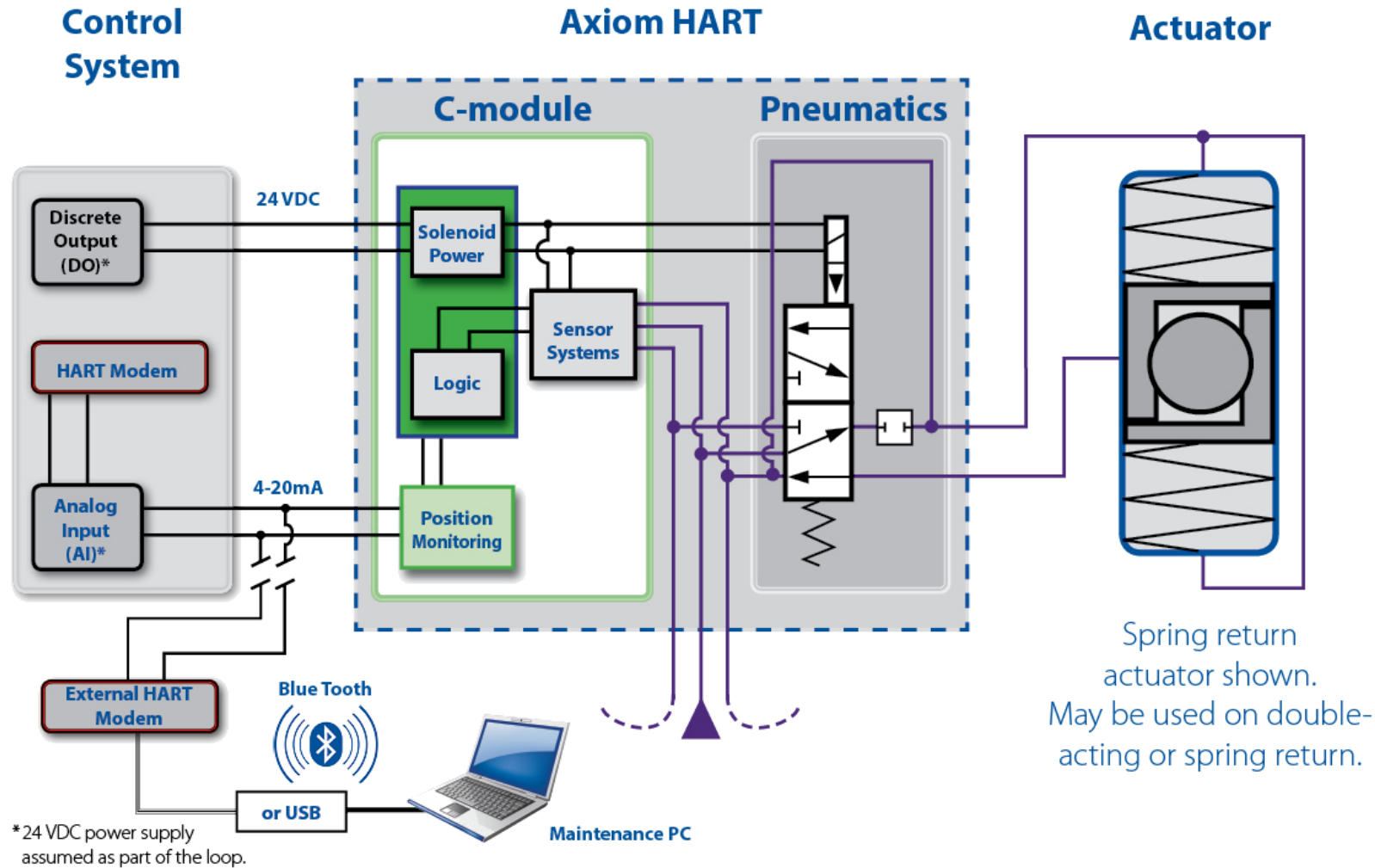
- Offers comprehensive predictive diagnostics
- Trending data for open / closed
 - "Dead" time
 - Stroke time
 - Position offset
 - Pressure levels (torque requirement)
- Controllable air pressure alarms
- Electronic circuit temperature
- Data is stored onboard for over 1 million cycles



Axiom HART

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Easy control system integration



Axiom AX vs the competition

Competition

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Competition

Common Issues

- Massive bulky enclosure typically 5" to 10" above actuator surface with mounting
- Double-bushings on shaft (to visual indicator and to housing)
- Painted aluminum enclosure
- Large number of bolts to secure cover and attach to actuator
- O-ring seals on each shaft bushing

COMPLICATED

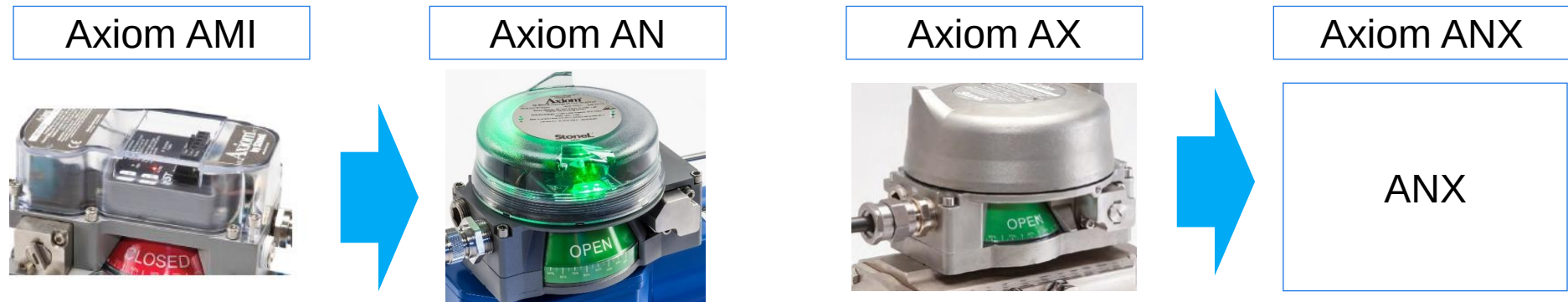
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Axiom Platform

Life cycle development

- AN was developed to replace Axiom AMI. It was introduced in 2016.
- Axiom AMI is ramping down. Versions that overlap with AN - AMI33 AMI44, AMI96 etc, ave been phased out already. Only AMI with FF and Hart remain
- ANX will be coming in Q2 2021. ANX is the XP version of AN with aluminum cover. AX will begin phasing out in 2022
- **AN and ANX will share the same mounting kits!!!**

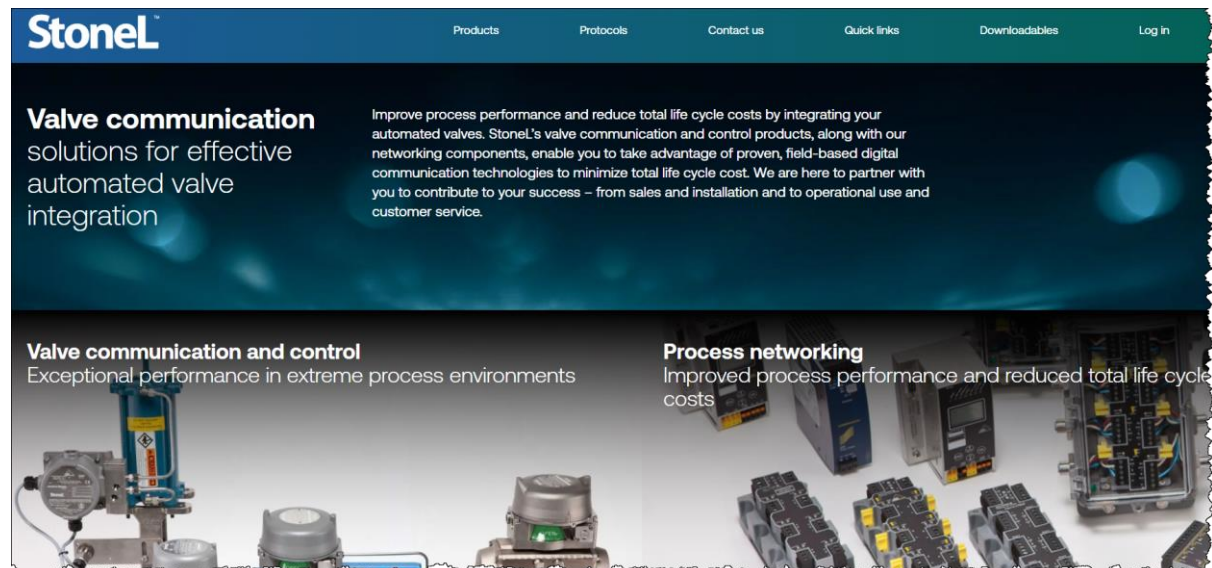


New StoneL.com Website

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Launched April 21, 2021

- StoneL.com was developed in a more modern platform. → Easy to maintain and better access to analytics
- StoneL.com has same great content and easy navigation → Easy to find what you need
- Distributor portals were moved to new URL (mn.stonel.com) → Same great content, same credentials
- Stonel.mountingkitsonline.com is still the best place to go for mounting kits → New tool just built last year

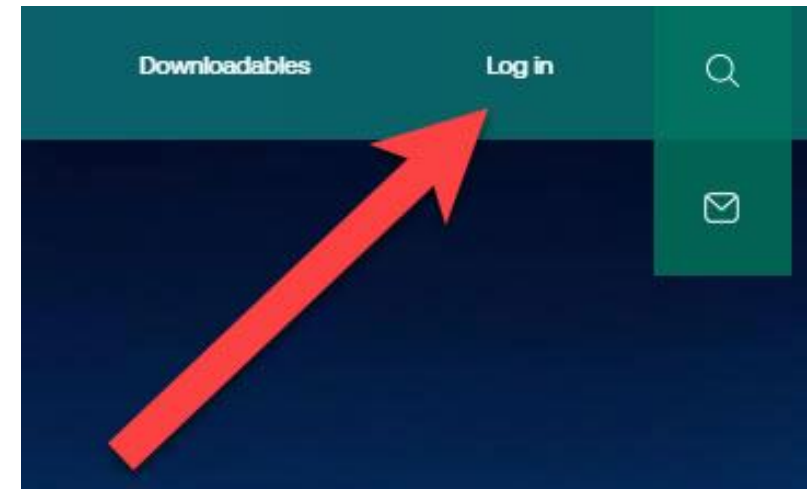
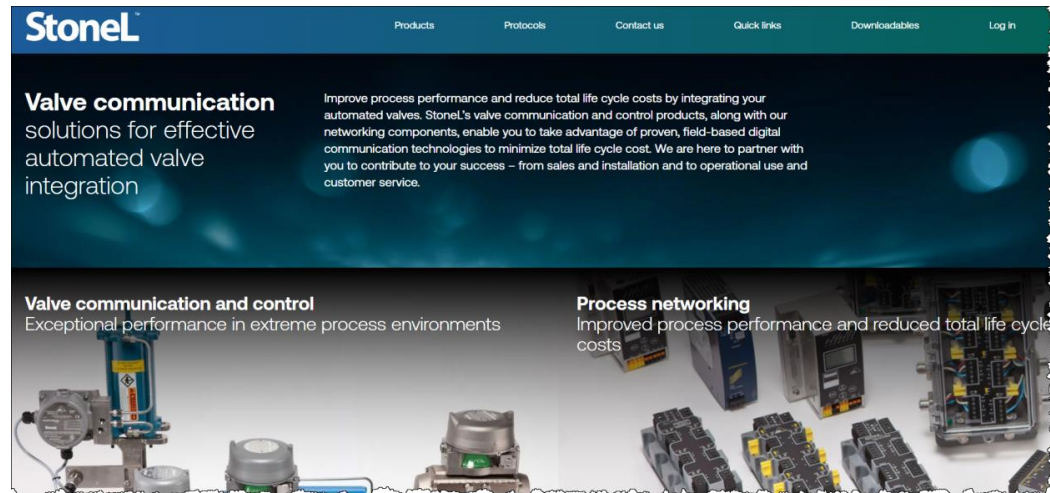


For additional information visit StoneL.com

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StoneL.com

- For product data sheets, IMO's, drawings, approval certificates, etc. visit stonel.com and click on [Products](#)
- To find contact info, click [Contacts](#). There you will find knowledgeable sales contacts for your area
- [Stonel.mountingkitsonline.com](#) is still the best place to go for mounting kits
- To order literature, check current lead times, or download pricebooks visit the distributor portal by clicking the [Log in](#) link. Use your credentials or request access.
- To order products, send your order via Pipeline or send it by e-mail to orders@stonel.com.



Questions?



Questions

April 27 combined Q&A

- Q: Do you have Russian certification (CUTR) for QC -55°C?
A: Not Yet. Work is in process
- Q: Axiom AN are SIL certified?[Manuel MArtinez]
A: Yes AN is SIL certified
- Q: Hi Bob, any plans to get the new Axiom with advanced diagnostics and approved in C1, D2 housing? Like the AMI96---DRM?
A: No current plans to develop this, at this time
- Q: Is the app available for Android devices?
A: No, it is not available in Android version
- Q: We have a Wireless link demo with a customer. Part number is AN35W. Will this option be released for sale or is the AN92/97W going to be the only option?
A: Yes, this will be introduced in Q2/Q3 2021

Questions

April 27 combined Q&A

- Q: What is difference between any type of Limit switch(i.e. Mechanical/Inductive/proximity) with positioner transmitter switch?
A: All types of switch options are available with position transmitter, but only solid state options are available with non-contact position transmitter.
- Q: what units are avail in Ffieldbus
A: Quartz QX93, QN93 Axiom AMI93, AX93
- Q: is there any plan to release QX for max temperature higher than + 80 °C ?
A: There are no current plans to develop this
- Q: So will the AMI96----DRM still remain in existence for a while?
A: Yes, but not forever.

Questions

April 27 combined Q&A

- Q: what are the applications where we cannot offer AXIOM?
A: Panel mount solenoid applications would not be ideal. Also <-40C or >+80C would not be applicable
- Q: SIL certified even with extended 1.2 CV?
A: Yes Axiom AX and Axiom AN with 1.2 Cv are Sil certified
- Q: Hello, is it possible to get this recording session?
A: Yes, recording will be sent to all attendees.
- Q: How does the universal voltage work?
- *A: For the Axiom, we take 24V, 120V, or 240V and rectify it to lower voltage to operate the sensors. Same for the solenoid valve. We take 24V or 120V or 240V and step it down to 12V to operate the coil.*

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Quartz™ limit switches and Axiom™ on/off valve controllers

Thank you for attending this event

April 27, 2021



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