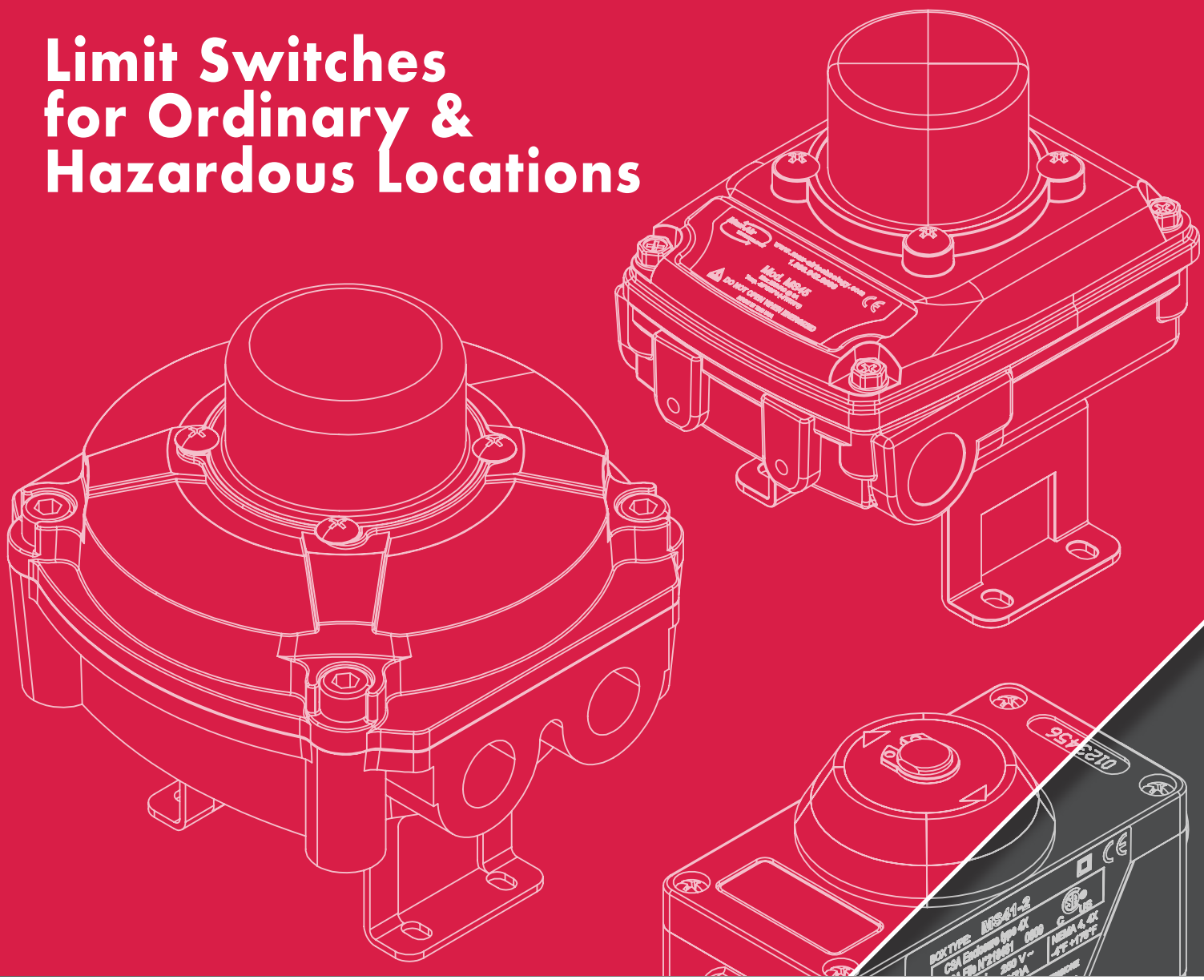
Max-Air TECHNOLOGY

The Best Way To Automate Your Process

Limit Switches for Ordinary & Hazardous Locations

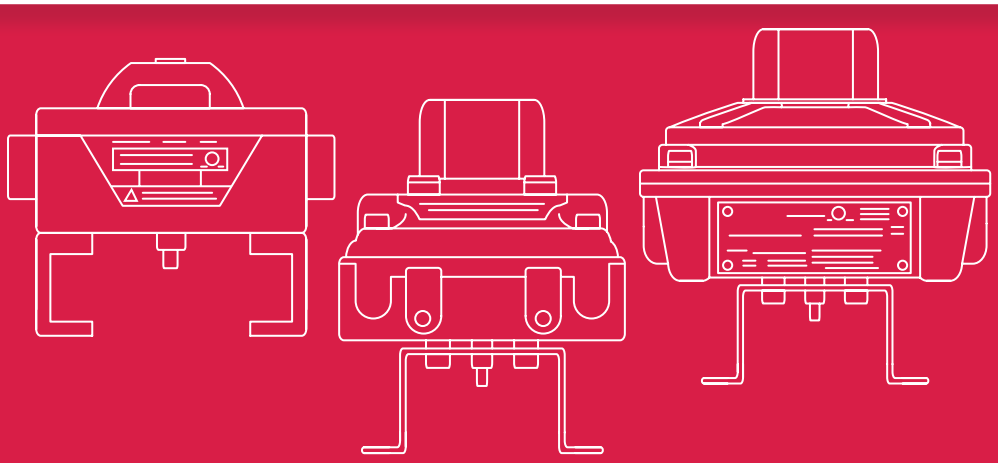


Limit Switches Technical Brochure

Max-Air Technology Inc. | Rotary Actuators & Valve Automation Solutions

Limit Switches

Standard & hazardous duty limit switch boxes available with mechanical, proximity, or inductive switches.



Max-Air limit switch boxes offer convenient and reliable switch feedback for actuated assemblies, for standard or hazardous duty environments. The NAMUR standard mounting design is compatible with all Max-Air pneumatic actuators.

48 Series Part Number Builder

A	B	—	C	D	E	F	G	H	I

A - SWITCH TYPE

North American Approvals
MS = Mechanical
PS = Magnetic
IS = Inductive Proximity

European Approvals
BE = Mechanical
BM = Magnetive Proximity
BS = Inductive Proximity

B - SERIES
48 = NEMA 4/4X/7/9, IP67

C - CONDUIT ENTRIES
1 = 1/2" NPT (2 Places)
2 = M20 x 1.5 (2 Places)

D - SWITCH QUANTITY
2 = Two (2) Switches
4 = Four (4) Switches (MS Type Only)

E - INDICATOR TYPE
0 = STD, Open/Closed, Yellow/Red
2 = Lport, 3way
3 = Tport, 3way
4 = Arrow, 3way
5 = Open/Close, Red/Green

G - SWITCHES & SENSORS

CODE	TYPE	DESCRIPTION
0	MS	Silver Plated Switches SPDT
S	MS	Gold Plated Switches SPDT
M	PS	Magnetic Reed Switches SPDT
Q	PS	Low Temp Magnetic Reed Switches SPDT
A	IS	IFM NS5002
B	IS	IFM IS5001
D	IS	IFM IS5026
E	IS	IFM IS0003
F	IS	P&F NJ2-V3-N
G	IS	P&F NBB2-V3-E2
H	IS	P&F NBB3-V3-Z4
K	IS	P&F NBB2-V3-E3
L	IS	P&F NBB2-V3-E0
N	IS	P&F NCB2-V3-N0
P	IS	IFM IS5004

F - MATERIAL & COLOR
M = Aluminum, black
7 = Stainless Steel

H - BRACKET
0 = None
3 = 3 = 30x80x30 Namur
6 = Universal Bracket
A = MS-LSB-01 (30x80x20 Namur)
B = MS-LSB-02 (30x80x30 Namur)
E = MS-LSB-05 (30x130x30 Namur)

I - BOARD OPTIONS
Blank = Standard 7-8-7-8 (Single Coil SV)
1 = Circuit Board 7-8-7-9 (Dual Coil SV)
2 = Circuit board 7-8-9-10

45 Series Part Number Builder

A	B	—	C	D	E	F	G	H	I

A - SWITCH TYPE

North American Approvals
MS = Mechanical
PS = Magnetic
IS = Inductive Proximity

European Approvals
BE = Mechanical
BX = Mechanical (Gold Plated)
BM = Magnetive Proximity
BS = Inductive Proximity

B - SERIES
45 = NEMA 4/4X, IP67

C - CONDUIT ENTRIES
1 = 1/2" NPT (2 Places)
2 = M20 x 1.5 (2 Places)

D - SWITCH QUANTITY
2 = Two (2) Switches

E - INDICATOR TYPE
0 = STD, Open/Closed, Yellow/Red
2 = Lport, 3way
3 = Tport, 3way
4 = Arrow, 3way
5 = Open/Close, Red/Green

F - MATERIAL & COLOR
M = Aluminum, black
7 = Stainless Steel

G - SWITCHES & SENSORS

CODE	TYPE	DESCRIPTION
0	MS	Silver Plated Mechanical Switches SPDT
S	MS	Gold Plated Mechanical Switches SPDT
0	PS	Low Power Magnetic Reed Switches SPDT
A	IS	IFM NS5002
B	IS	IFM IS5001
D	IS	IFM IS5026
E	IS	IFM IS0003
F	IS	P&F NJ2-V3-N
G	IS	P&F NBB2-V3-E2
H	IS	P&F NBB3-V3-Z4
K	IS	P&F NBB2-V3-E3
L	IS	P&F NBB2-V3-E0
N	IS	P&F NCB2-V3-N0

H - BRACKET
0 = None
3 = 30x80x30 Namur
6 = Universal Bracket
A = MS-LSB-01 (30x80x20 Namur)
B = MS-LSB-02 (30x80x30 Namur)
E = MS-LSB-05 (30x130x30 Namur)

I - BOARD OPTIONS
Blank = Standard 7-8-7-8 (Single Coil SV)
1 = Circuit Board 7-8-7-9 (Dual Coil SV)
2 = Circuit board 7-8-9-10

41 Series Part Number Builder

A	B	—	C	D	E	F	G	H	I

A - SWITCH TYPE

North American Approvals
MS = Mechanical
PS = Magnetic
IS = Inductive Proximity

European Approvals
BE = Mechanical
BM = Magnetive Proximity
BS = Inductive Proximity

B - SERIES
41 = Technopolymer Housing, NEMA 4/4X

C - SWITCH QUANTITY
2 = Two (2) Switches

D - CONDUIT ENTRIES
1 = 1/2" NPT
2 = M20x1.5

E - INDICATOR TYPE
S = Open Close, Yellow/Black

F - MATERIAL & COLOR
T = Technopolymer, Black

G - SWITCHES & SENSORS

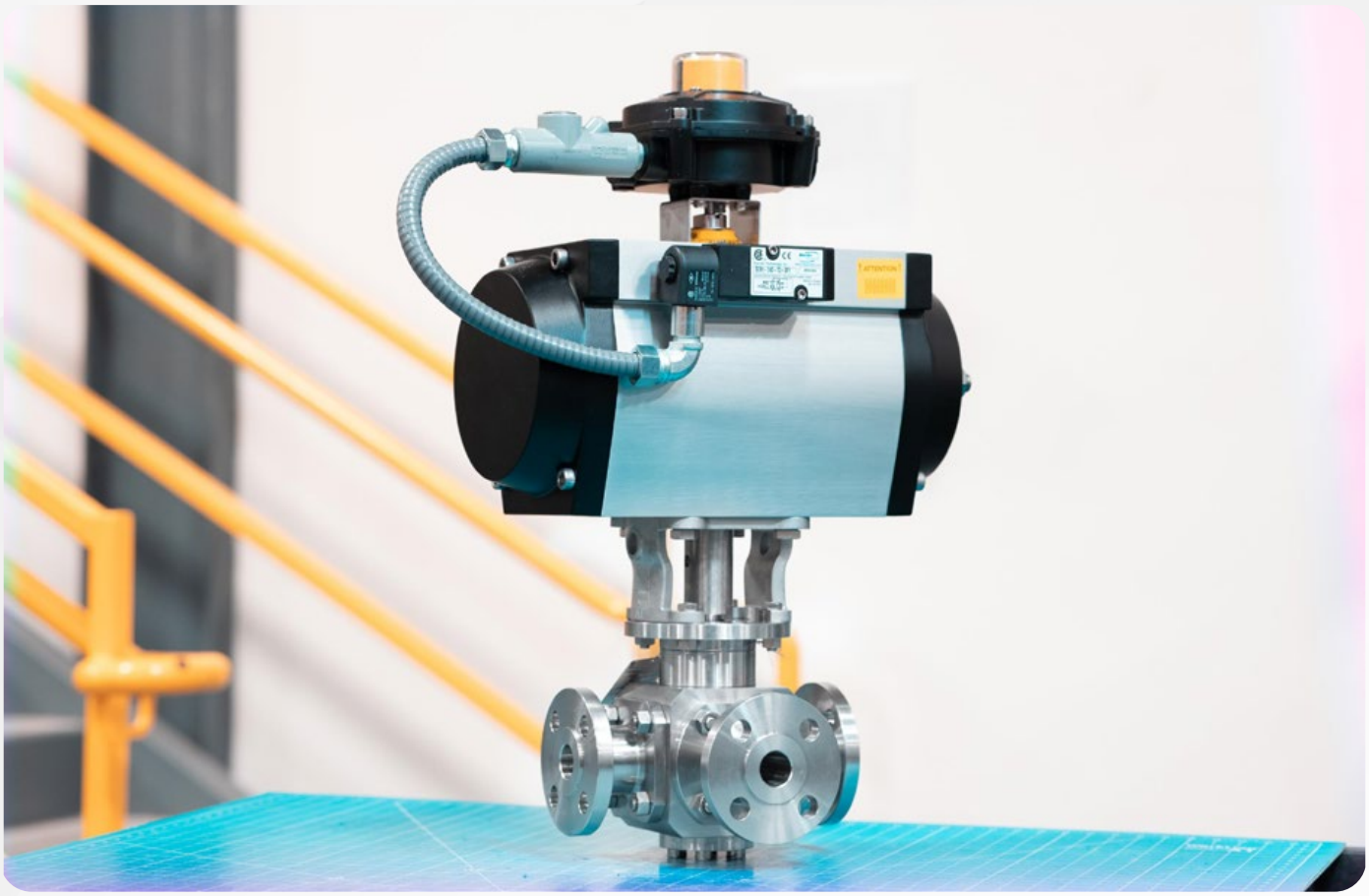
CODE	TYPE	DESCRIPTION
0	MS	Silver Plated Mechanical Switches SPDT
S	MS	Gold Plated Mechanical Switches SPDT
0	PS	Low Power Magnetic Reed Switches SPDT
A	IS	IFM NS5002
B	IS	IFM IS5001
D	IS	IFM IS5026
E	IS	IFM IS0003
F	IS	P&F NJ2-V3-N
G	IS	P&F NBB2-V3-E2
H	IS	P&F NBB3-V3-Z4
K	IS	P&F NBB2-V3-E3
L	IS	P&F NBB2-V3-E0

H - BRACKET
T = Technopolymer 30x80x30

I - SPECIAL OPTIONS
Blank = Standard 7-8-7-8 (Single Coil) SV

Limit Switches

Standard & hazardous duty limit switch boxes available with mechanical, proximity, or inductive switches.



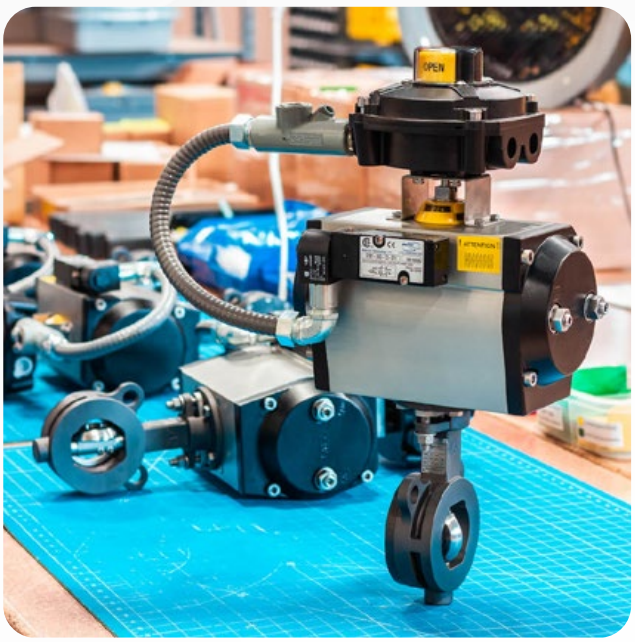


Table of Contents

Pg - Description
02 - Part Number Builder
05 - Table of Contents
06 - Features & Benefits
08 - Switch Types
10 - 48 Series Exploded Views, Materials, & Dimensions
12 - 45 Series Exploded Views, Materials, & Dimensions
14 - 41 Series Exploded Views, Materials, & Dimensions
16 - Wiring Diagrams

STANDARD WARRANTY

Max-Air Technology Inc. | The Best Way to Automate Your Process

Max-Air Technology provides the following warranty regarding products manufactured by it. **THE WARRANTY STATED HEREIN IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES AND REPRESENTATIONS, EXPRESSED OR IMPLIED, OR STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE**. Max-Air Technology warrants its products to be free from defects in materials and workmanship when these products are used for the purpose for which they were designed and manufactured. Max-Air Technology does not warrant its products against chemical or stress corrosion or against any other failure other than from defects in materials or workmanship. The warranty period is for twelve (12) months from installation date or eighteen (18) months from shipment date, whichever date comes first. Any claims regarding this warranty must be in writing and received by Max-Air Technology before the last effective date of the warranty period. Upon Max-Air Technology's receipt of a warranty claim, Max-Air Technology reserves the right to inspect the product(s) in question at either the field location or at the Max-Air Technology Manufacturing plant. If, after inspection of the product(s) in question, Max-Air Technology determines that the purchaser's claim is covered by this warranty, Max-Air Technology's sole liability and the purchaser's sole remedy under this warranty is limited to the refunding of the purchase price or repair or replacement thereof at Max-Air Technology option. Max-Air Technology will not be liable for any repairs, labor, material or other expenses that are not specifically authorized in writing by Max-Air Technology, and in no event shall Max-Air Technology be liable for any direct or consequential damages arising out of any defect from any cause whatsoever. If any Max-Air Technology product is modified or altered at any location other than Max-Air Technology – St. Louis (Missouri) UNITED STATES or Max-Air Technology – Agrate Brianza (MB) ITALY without the express written authorization of Max-Air Technology, said product is not covered by this warranty. The warranty for such products shall be subject only to the warranty relief, if any, provided by the suppliers and/or manufacturers of such products.

Features & Benefits

Standard & hazardous duty limit switch boxes available with mechanical, proximity, or inductive switches.

Standard/Hazardous Switch Feedback

Max-Air limit switch boxes offer convenient and reliable switch feedback for actuated assemblies, for standard or hazardous duty environments. The NAMUR standard mounting design is compatible with all Max-Air pneumatic actuators.

Standard Features:

- Compact Design & Quick Set Cams
- 3D Models Available for All Designs and Sizes
- Easy Wiring Through PCB Terminal, 10pt.
- Single and Dual-Coil Solenoid Valve Options
- High Visibility Open/Close Beacon
- 3-Way T-Port & L-Port Beacon Options
- Inclusive 30x80x30 NAMUR Mounting Bracket
- Other Mounting Brackets Available

41 Series Technopolymer
Cost effective mechanical or non-contact switches with epoxy resin enclosure for ordinary locations.

Locations	Ordinary, Hazardous, NEMA 4/4x
Materials	Aluminum, Stainless Steel
Ambient Temp. Range	-4°F to 140°F Standard (-40°F Low, 176°F High)
Switch Type	Mechanical, Inductive, & Magnetic

45 Series Aluminum & Stainless
Mechanical or non-contact switch options for ordinary locations.

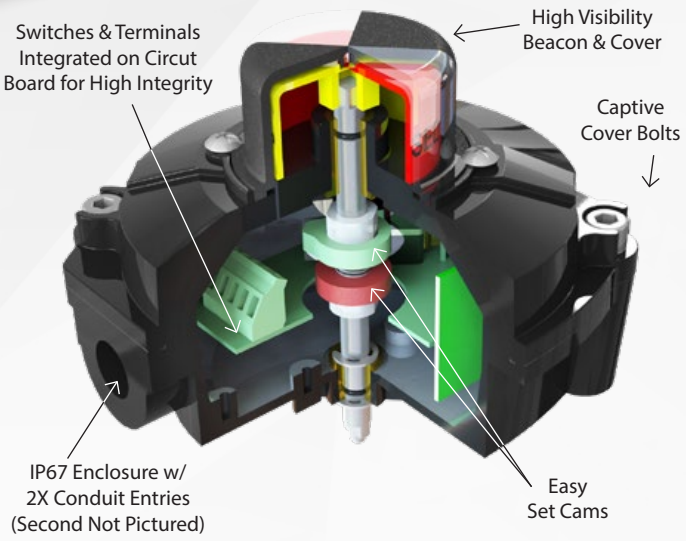
48 Series Aluminum & Stainless
Mechanical or non-contact switch options with heavy duty enclosure for hazardous locations.

Voltages	AC/DC, Ordinary & Hazardous Locations
Mounting	NAMUR VDI/VDI 3845
Available Options	T-Port, L-Port, Special Beacons, Low Temp Option

Limit Switch Box Selection

Start from the top of the chart and work down to select the correct Limit Switch Box.

Environment	Standard			Corrosive		
Electrical Classification	Ordinary	Hazardous		Ordinary	Hazardous	
Temperature	Standard	Standard	Extreme (Low)	Standard	Standard	Extreme (Low)
Recommended Series/Options	41 Series 45 Series (Aluminum)	45 Series (BX) w/ Intrinsically Safe (Aluminum) 48 Series (Aluminum)	48 Series w/ Temp. Seals (Aluminum)	41 Series 45 Series (Stainless Steel)	45 Series (BX) w/ Intrinsically Safe (Stainless Steel) 48 Series (Stainless Steel)	48 Series w/ Temp. Seals (Stainless Steel)
Switch Types	Mechanical, Proximity, Inductive					
Available Options	T-Port Beacons, L-Port Beacons, Specialty Beacons, Brackets					



48 Series

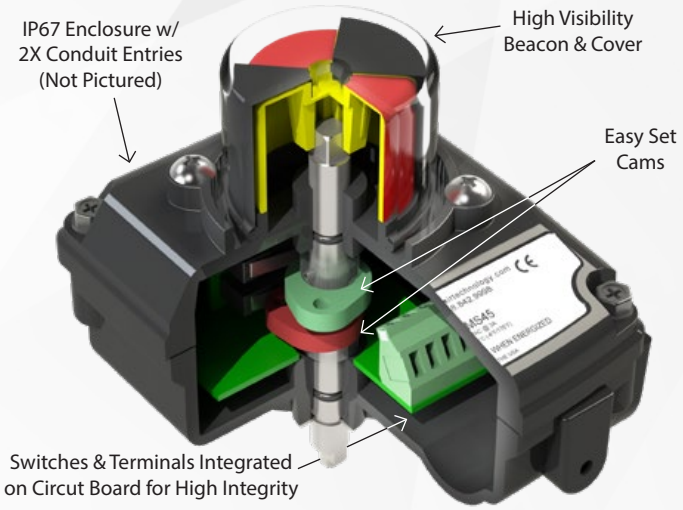
The Max-Air 48 Series Explosion Proof aluminum and stainless steel limit switch boxes are available for the highest level of safety in hazardous environments. Extremely reliable, robust, and time tested the 48 Series is an excellent solution for your position monitoring needs. Switches available with mechanical, proximity and inductive types, and fully certified to North American and European standards.

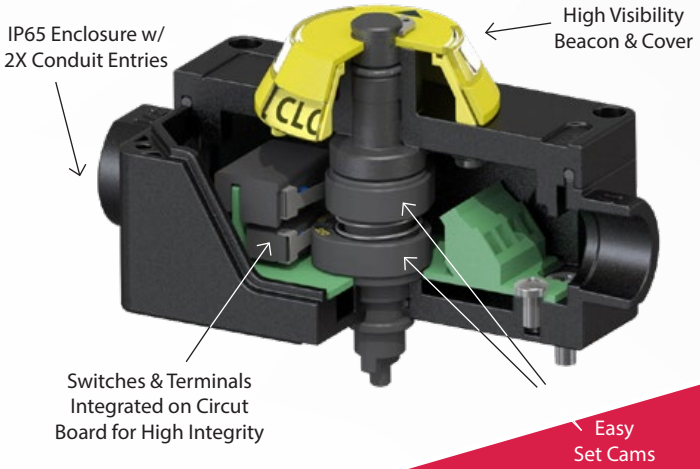
Specifications Table		
Ingress Protection	IP67/NEMA4/4X/7/9	
Cable Entries	Standard 1/2" NPT (2 places) Optional M20x1.5 (2 places)	
Temp. Range	Low Temp. (Silicone)	-40°F (-15°C) to 140°F (60°C)
	Standard (BUNA-N)	-4°F (-20°C) to 140°F (60°C)
Terminal Strip	10 Pt. Single Coil & 10 Pt. Dual Coil	
Weight	Aluminum 3.79 lbs (1.72 kg) & Stainless 9.85 lbs (4.47 kg)	
Approvals	See Table on Page 10	

45 Series

The Max-Air 45 Series aluminum and stainless steel series limit switch boxes are an extremely reliable, robust, and time tested solution for your position monitoring needs. Switch boxes available with mechanical, proximity and inductive switch types, and fully certified to North American and European standards.

Specifications Table		
Ingress Protection	IP67/NEMA4/4X	
Cable Entries	Standard 1/2" NPT (2 places), Optional M20x1.5 (2 places)	
Temp. Range	Standard (BUNA-N)	-4°F (-20°C) to 176°F (80°C)
Terminal Strip	10 Pt. Single Coil & 10 Pt. Dual Coil	
Weight	Aluminum 1.62 lbs (0.74 kg) & Stainless 3.94 lbs (1.79 kg)	
Approvals	See Table on Page 12	





41 Series

The Max-Air 41 Series Technopolymer Limit Switch Box provides unparalleled position indication for rotary actuators. Manufactured completely in technopolymer with stainless steel fasteners CSA Listed, and carrying a NEMA 4/4X rating, these compact lightweight limit switches are an excellent choice for general corrosive environments.

Specifications Table		
Ingress Protection	IP65/NEMA4/4X	
Cable Entries	Standard 1/2" NPT (2 places)	
Temperature Range	Standard (BUNA-N)	-4°F (-20°C) to 176°F (80°C)
Terminal Strip	10 Pt. Single Coil & 10 Pt. Dual Coil	
Weight	Technopolymer 0.75 lbs (0.34 kg)	
Approvals	See Table on Page 14	

Switch Types

Mechanical, Magnetic Proximity, & Inductive Proximity

MS - Mechanical Switches

Mechanical switches are activated by pressing a spring return lever, and have physical contacts plated with a noble metal such as silver or gold. When energized contact is made, a small arc or spark can be produced within the housing of the switch that is not completely sealed off from the atmosphere. Mechanical switches are passive devices that do not require external power to operate.

41 Series / 45 Series

Code 0
Silver Plated Switches SPDT
Rating: 5A@125VAC, 3A@30VDC
Ambient Temp: -13°F to +185°F

Code S
Gold Plated Switches SPDT
Rating: 0.1A@125VAC, 0.1A@30VDC
Ambient Temp: -13°F to +185°F

48 Series

Code 0
Silver Plated Switches SPDT
Rating: 10A@125VAC, 6A@30VDC
Ambient Temp: -13°F to +185°F

Code S
Gold Plated Switches SPDT
Rating: 0.1A@125VAC, 0.1A@30VDC
Ambient Temp: -40°F to +180°F

PS - Magnetic Proximity Switches

Magnetic proximity switches are activated by the presence of a magnetic field, and have hermetically sealed physical contacts plated with a noble metal such as tungsten or rhodium. The encapsulated contact elements are completely isolated from the atmosphere, eliminating arcs or sparks and preventing corrosion. Magnetic switches are passive devices that do not require external power. Because the contacts are "non-sparking" and "non-contact", magnetic type switches are commonly used in hazardous locations.

41 Series / 45 Series

Code 0
Low Power Reed Switches SPDT
Rating: 3W Max, 0.04A@120VAC, 0.20A@24VDC
Ambient Temp: -40°F to +221°F

48 Series

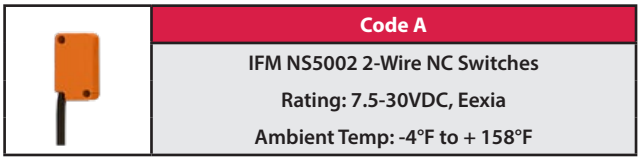
Code M
Reed Switches SPDT
Rating: 100W Max, 0.83A@120VAC, 4.1A@24VDC
Ambient Temp: -4°F to +221°F

Code Q
Low Temp Reed Switches SPDT
Rating: 100W Max, 0.83A@120VAC, 4.1A@24VDC
Ambient Temp: -76°F to +257°F

IS - Inductive Proximity

Inductive proximity switches are activated by the presence of a magnetic or ferritic target which disturbs the sensor's own magnetic field. Inductive switches are "active" devices which require external power and are available in a variety of configurations. Inductive type switches are inherently "non-sparking" and usually operate on low voltage DC power, making them well suited for intrinsically safe applications.

41 Series / 45 Series / 48 Series

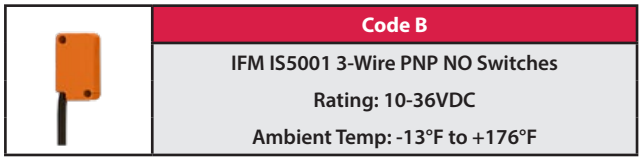


Code A

IFM NS5002 2-Wire NC Switches

Rating: 7.5-30VDC, Eexia

Ambient Temp: -4°F to + 158°F

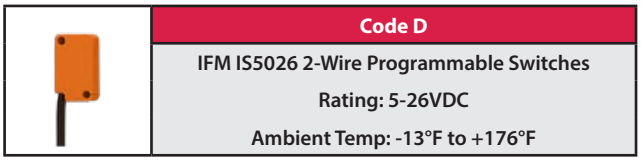


Code B

IFM IS5001 3-Wire PNP NO Switches

Rating: 10-36VDC

Ambient Temp: -13°F to +176°F

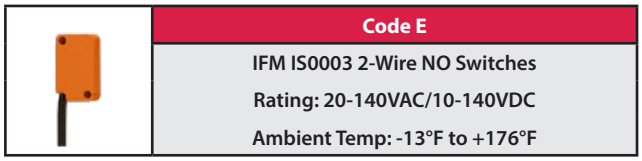


Code D

IFM IS5026 2-Wire Programmable Switches

Rating: 5-26VDC

Ambient Temp: -13°F to +176°F

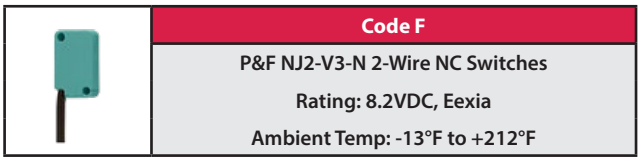


Code E

IFM IS0003 2-Wire NO Switches

Rating: 20-140VAC/10-140VDC

Ambient Temp: -13°F to +176°F

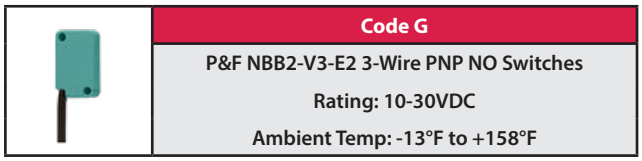


Code F

P&F NJ2-V3-N 2-Wire NC Switches

Rating: 8.2VDC, Eexia

Ambient Temp: -13°F to +212°F

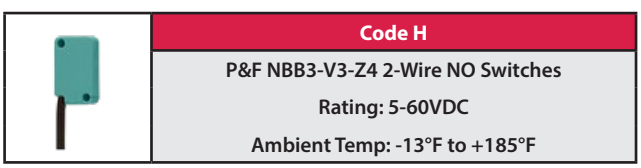


Code G

P&F NBB2-V3-E2 3-Wire PNP NO Switches

Rating: 10-30VDC

Ambient Temp: -13°F to +158°F

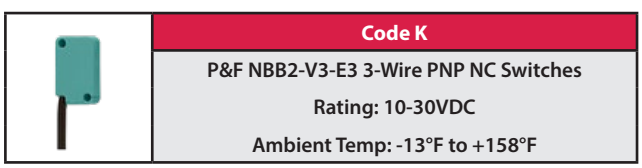


Code H

P&F NBB3-V3-Z4 2-Wire NO Switches

Rating: 5-60VDC

Ambient Temp: -13°F to +185°F

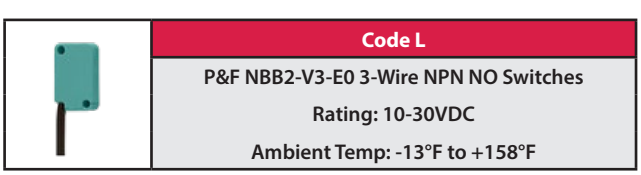


Code K

P&F NBB2-V3-E3 3-Wire PNP NC Switches

Rating: 10-30VDC

Ambient Temp: -13°F to +158°F

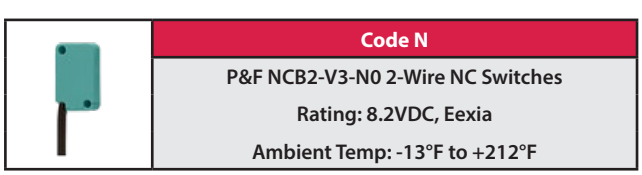


Code L

P&F NBB2-V3-E0 3-Wire NPN NO Switches

Rating: 10-30VDC

Ambient Temp: -13°F to +158°F



Code N

P&F NCB2-V3-N0 2-Wire NC Switches

Rating: 8.2VDC, Eexia

Ambient Temp: -13°F to +212°F

48 Series Technical Data

Exploded View, Materials of Construction, & Dimensional Data

48 Series

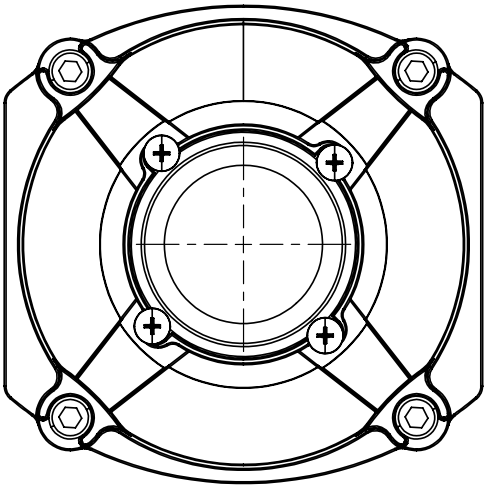
Exploded View & Bill of Materials

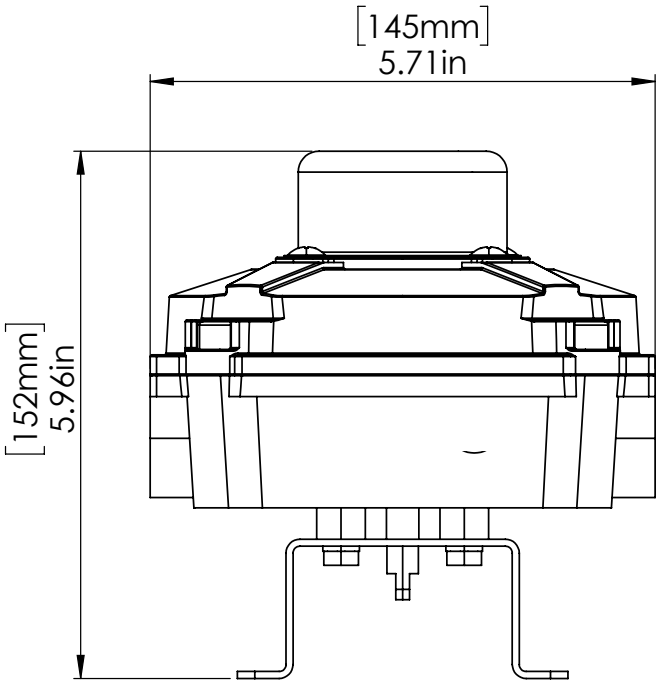
- **Certifications**
  - CE
  - ATEX II 3 D
  - ATEX II 2 G Ex d IIC T6 Gb
  - ATEX II 2 D Ex t IIIC T*
  - SIL-2 Rating
  - Class I, Division 1, Groups C and D; Class II, Division 1, Groups E, F and G; Class III; Temp Code T4A
  - Class I, Division 2, Groups A, B, C and D; Class II, Division 1, Groups E, F and G; Class III; Temperature Code T4A
  - Ex d IIB T5 Gb; Ex tb IIIC T108°C Db
  - Ex nA IIC T5 Gc; Ex tb IIIC T108°C Db
  - Class I Zone 1, AExd IIB T5 Gb;
  - Class II, Zone 21 AEx tb IIIC T108°C Db
  - Class I, Zone 2 AEx nA IIC T5Gc;
  - Class II, Zone 21, AEx tb IIIC T108°C Db

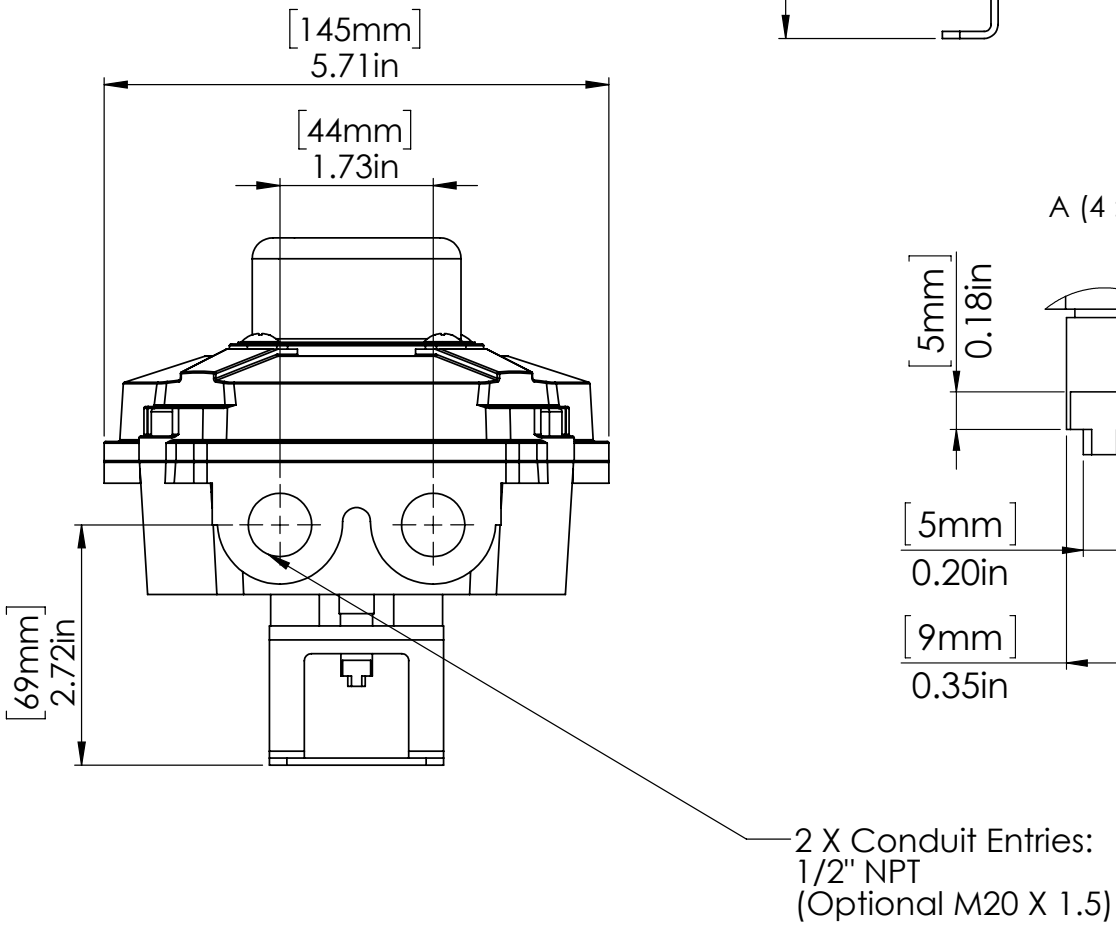
#	DESCRIPTION	MATERIALS
1	Housing	Die Cast Aluminium (AISI 316 Stainless Steel)
2	Shaft	AISI 304 Stainless Steel (AISI 316 Stainless Steel w/ Teflon Coating)
3	Beacon Cover	Polycarbonate
4	High Visibility Beacon	ABS
5	Captive Cover Bolts	Stainless Steel
6	Cams	ABS
7	Spring	Stainless Steel

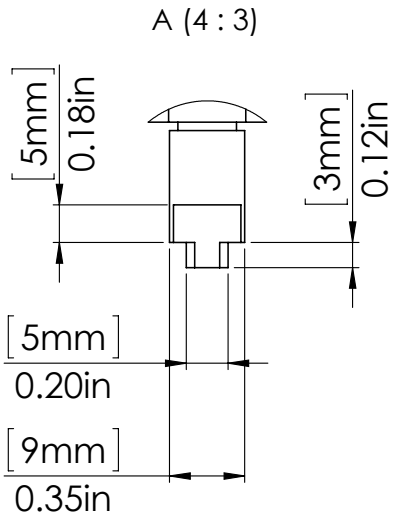
#	DESCRIPTION	MATERIALS
8	O-Ring	NBR Low Temp Silicone (Optional)
9	Bracket	AISI 304 Stainless Steel AISI 316 Stainless Steel
10	O-Ring	NBR Low Temp Silicone (Optional)
11	Indicator Cover Screws	Stainless Steel
12	PCB Board w/ Switches	Various
13	Shaft Retainer Ring	Stainless Steel

48 Series




[145mm]
5.71in
[152mm]
5.96in


[145mm]
5.71in
[44mm]
1.73in
[69mm]
2.72in
2 X Conduit Entries:
1/2" NPT
(Optional M20 X 1.5)

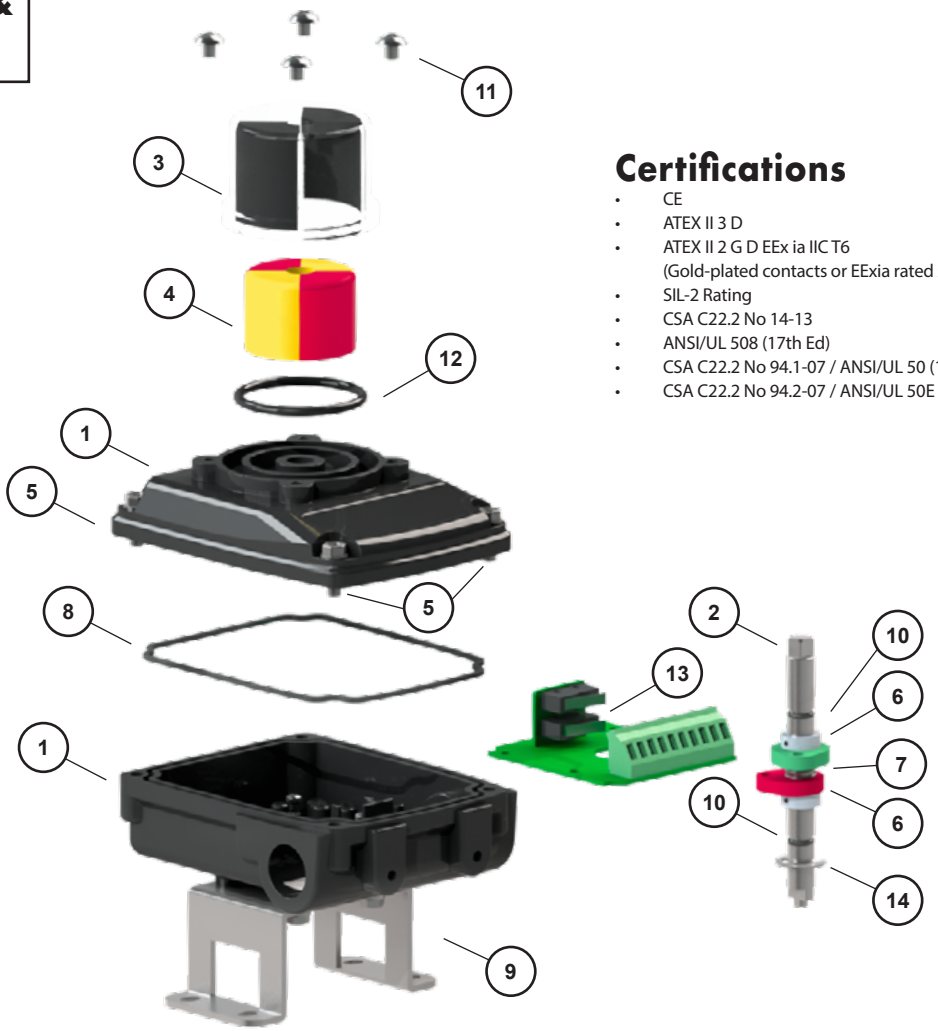

A (4 : 3)
[5mm]
0.18in
[3mm]
0.12in
[5mm]
0.20in
[9mm]
0.35in

45 Series Technical Data

Exploded View, Materials of Construction, & Dimensional Data

45 Series

Exploded View & Bill of Materials



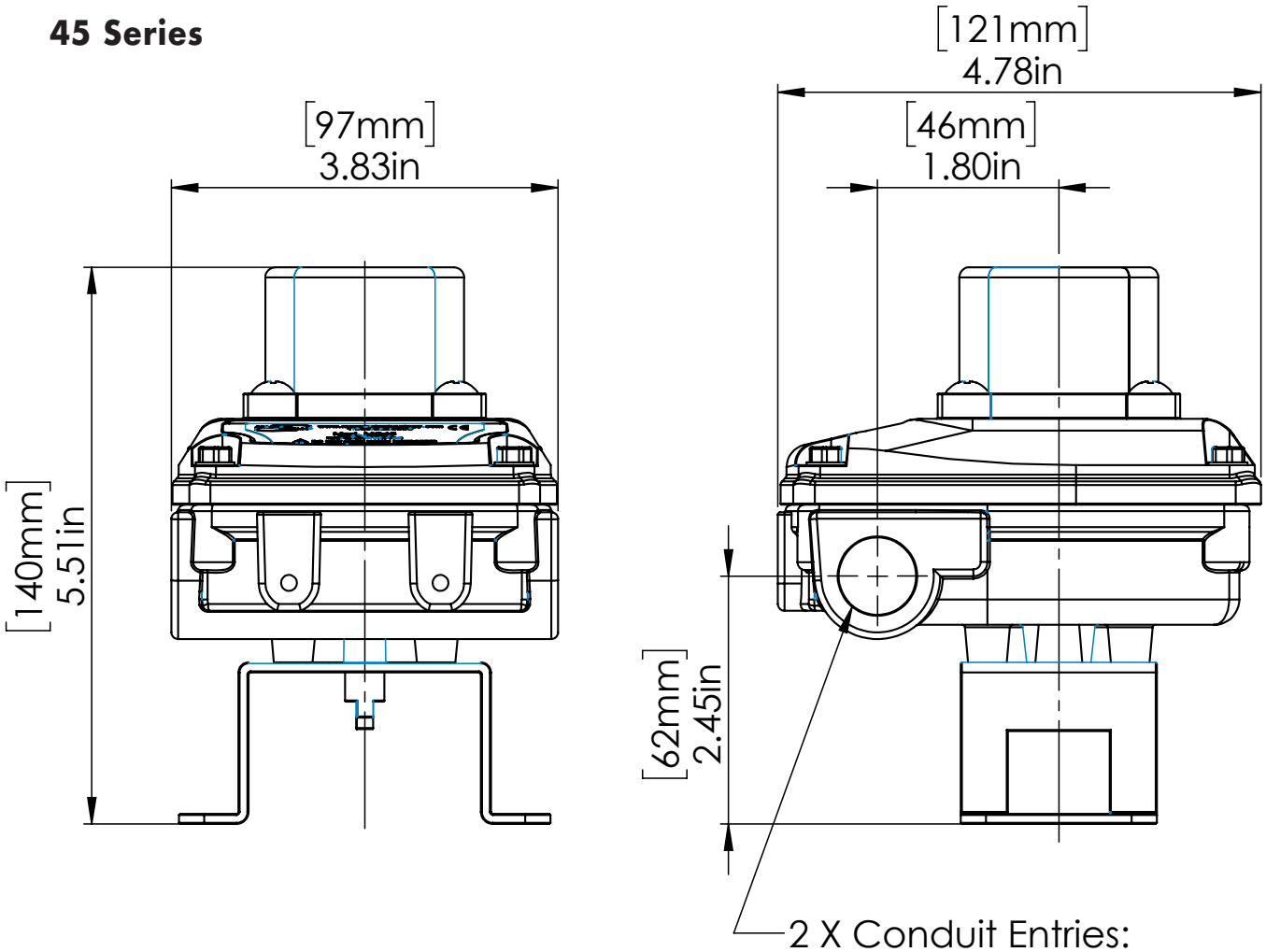
Certifications

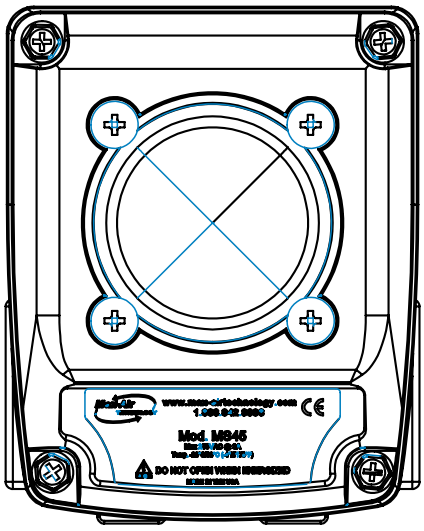
- CE
- ATEX II 3 D
- ATEX II 2 G D EEx ia IIC T6
  (Gold-plated contacts or EExia rated switches only)
- SIL-2 Rating
- CSA C22.2 No 14-13
- ANSI/UL 508 (17th Ed)
- CSA C22.2 No 94.1-07 / ANSI/UL 50 (12th Ed)
- CSA C22.2 No 94.2-07 / ANSI/UL 50E

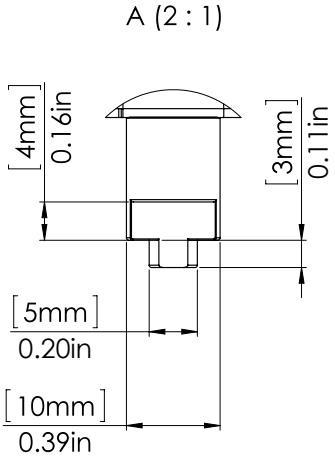
#	DESCRIPTION	MATERIALS
1	Housing	Die Cast Aluminium AISI 316 Stainless Steel
2	Shaft	AISI 304 Stainless Steel AISI 316 Stainless Steel w/ Teflon Coating
3	Beacon Cover	Polycarbonate
4	High Visibility Beacon	ABS
5	Cover Bolts	Stainless Steel
6	Cams	ABS
7	Spring	Stainless Steel

#	DESCRIPTION	MATERIALS
8	O-Ring	NBR
9	Bracket	AISI 304 Stainless Steel AISI 316 Stainless Steel
10	O-Ring	NBR
11	Indicator Cover Screws	Stainless Steel
12	Indicator Cover O-Ring	NBR Low Temp Silicone (Optional)
13	PCB Board w/ Switches	Various
14	Shaft Retainer Ring	Stainless Steel

45 Series


[97mm]
3.83in
[140mm]
5.51in
[121mm]
4.78in
[46mm]
1.80in
[62mm]
2.45in
2 X Conduit Entries:
1/2" NPT
(Optional M20X1.5)



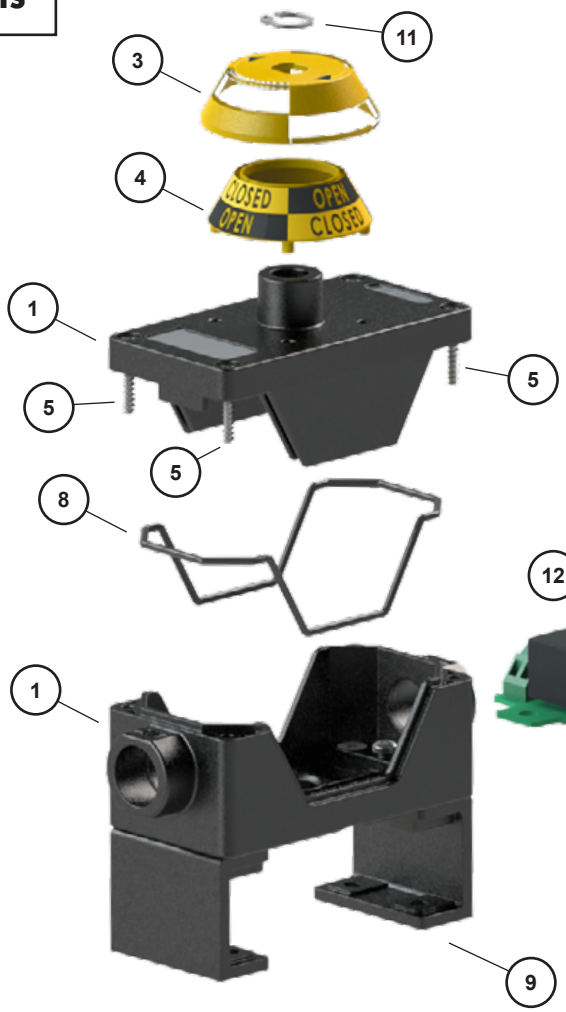

A (2 : 1)
[4mm]
0.16in
[3mm]
0.11in
[5mm]
0.20in
[10mm]
0.39in

41 Series Technical Data

Exploded View, Materials of Construction, & Dimensional Data

41 Series

Exploded View & Bill of Materials



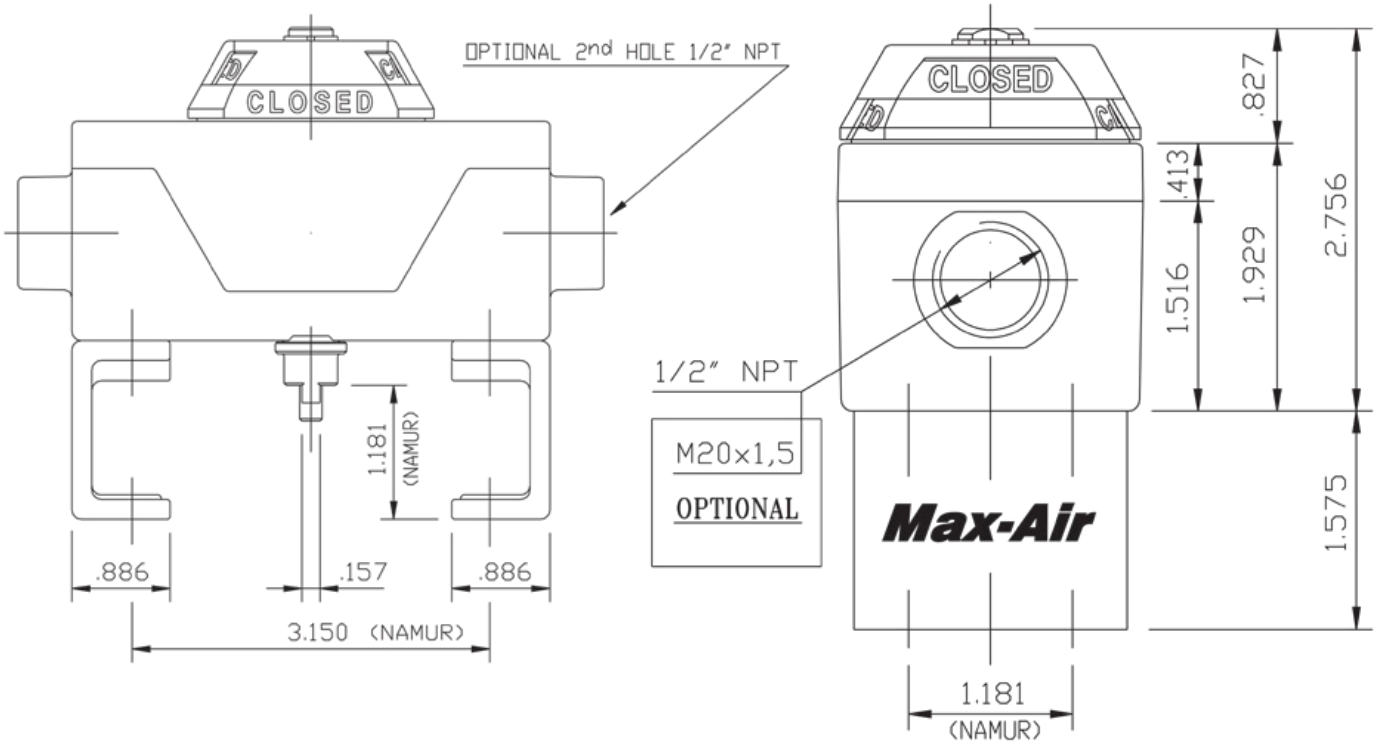
Certifications

- CE
- CSA C22.2 No 14-13
- ANSI/UL 508 (17th Ed)

#	DESCRIPTION	MATERIALS
1	Housing	Technopolymer
2	Shaft	Technopolymer
3	Beacon Cover	Polycarbonate
4	High Visibility Beacon	ABS
5	Cover Bolts	Stainless Steel
6	Cams	ABS

#	DESCRIPTION	MATERIALS
7	Spring	Stainless Steel
8	O-Ring	NBR
9	Bracket	Technopolymer
10	O-Ring	NBR
11	Indictor Snap Ring	Stainless Steel
12	PCB Board w/ Switches	Various

41 Series


CLOSED
OPTIONAL 2nd HOLE 1/2" NPT
1.181
(NAMUR)
.886
.157
.886
3.150 (NAMUR)
CLOSED
1/2" NPT
M20x1,5
OPTIONAL
Max-Air
.827
.413
1.516
1.929
2.756
1.575
1.181
(NAMUR)

Wiring Diagrams

Diagrams for the 48 & 45 Series Limit Switch Boxes

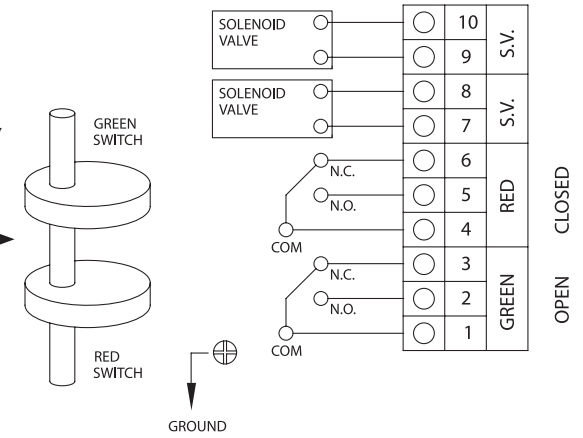
45/48 Series - Mechanical/Proximity

WARNING: NEMA 4, 4x / IP67 protection depends on the wiring connection, so the use of inappropriate components and/or wrong installation will result in a decrease in the protection rating of the switch box.

45/48 Series
MS, PS Type Switches
2x Mechanical/Proximity

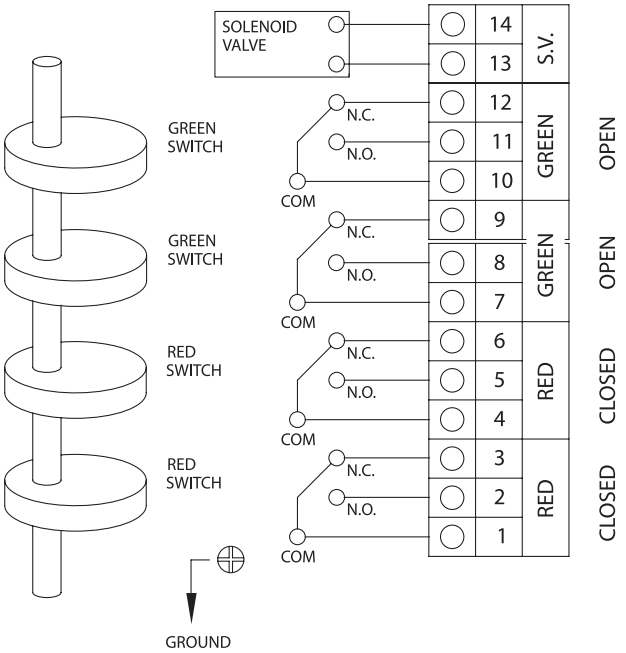
TWO MICRO SWITCHES SPDT, MECHANICAL OR MAGNETIC

(Dual Coil Board Option Shown)



48 Series
MS Type Switches Only
4x Mechanical

FOUR MICRO SWITCHES SPDT, MECHANICAL

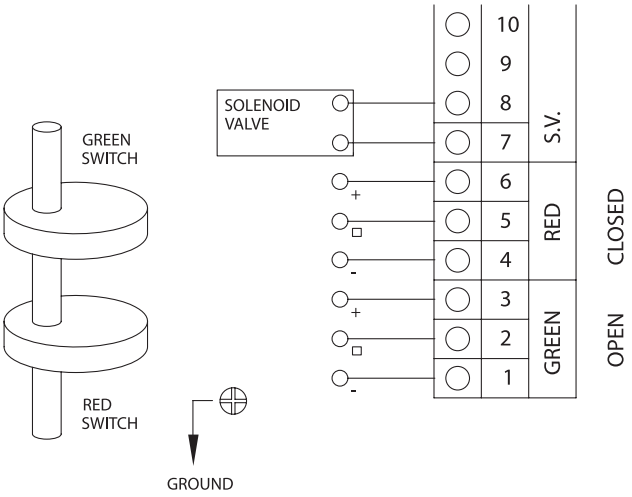


45/48 Series Inductive Switches

WARNING: NEMA 4, 4x / IP67 protection depends on the wiring connection, so the use of inappropriate components and/or wrong installation will result in a decrease in the protection rating of the switch box.

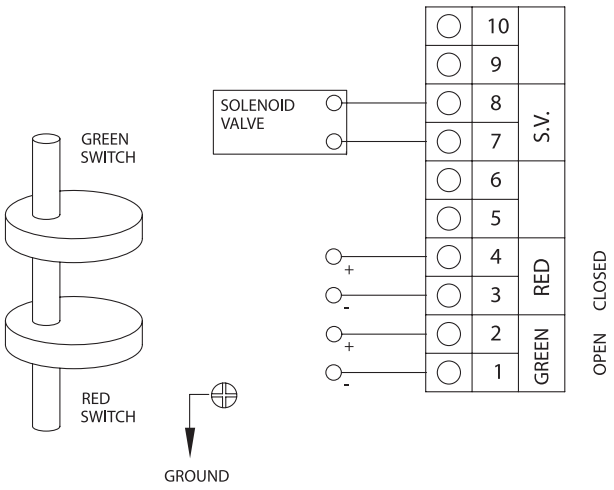
45/48 Series
IS Type Switch (3-Wire)
Codes: B, G, K, L

THREE WIRES PROXIMITY



45/48 Series
IS Type Switch (2 -Wire)
Codes: A, D, E, F, H, N

TWO WIRES PROXIMITY

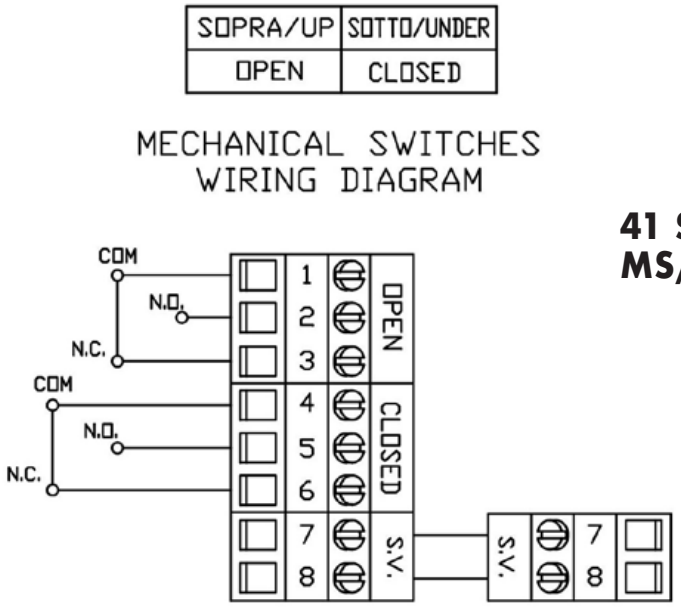


Wiring Diagram

Diagrams for the 41 Series Limit Switch Boxes

41 Series - Mechanical/Proximity

WARNING: NEMA 4, 4x / IP67 protection depends on the wiring connection, so the use of inappropriate components and/or wrong installation will result in a decrease in the protection rating of the switch box.



41 Series
MS/PS Type Switches

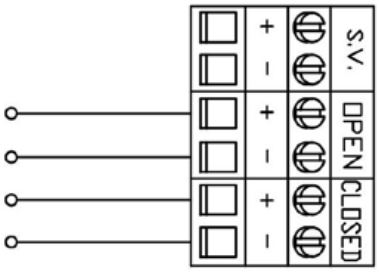
41 Series - Inductive Switches

WARNING: NEMA 4, 4x / IP67 protection depends on the wiring connection, so the use of inappropriate components and/or wrong installation will result in a decrease in the protection rating of the switch box.

41 Series IS Type Switches (2-Wire)

SOPRA/UP	SOTTO/UNDER
OPEN	CLOSED

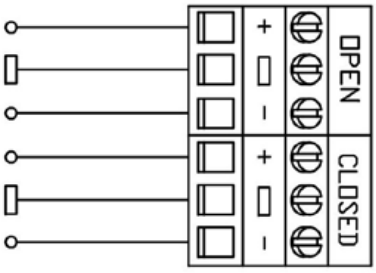
2 WIRES PROXIMITY WIRING DIAGRAM



41 Series IS Type Switches (3-Wire)

SOPRA/UP	SOTTO/UNDER
OPEN	CLOSED

3 WIRES PROXIMITY WIRING DIAGRAM



Distributed by | Distribuido por :

ANYTHING FLOWS™

INFO@ANYTHINGFLOWS.COM

WWW.ANYTHINGFLOWS.COM

Flow Control , our passion ®

Life Flows on ™

SCAN ME