Certificate of Compliance

Certificate: 2615594 **Master Contract:** 218481

Project: 70187900 **Date Issued:** August 23, 2019

Issued to: Max-Air Technology
114 Resource Drive
Wentzville, MO 63385
Attention: Jon Davis

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and US Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only

C US

Issued by: Marius Manastireanu
Marius Manastireanu

PRODUCTS

2258 02 – PROCESS CONTROL EQUIPMENT – For Hazardous Locations – Certified to Canadian Standards
2258 82 – PROCESS CONTROL EQUIPMENT – For Hazardous Locations – Certified to U.S. Standards

PART A:

Class I, Division 1, Groups C and D; Class II, Division 1, Groups E, F and G; Class III; TCode T4A
Ex d IIC T5 Gb; Ex tb IIIC T108°C Db
Class I, Zone 1, AEx d IIC T5 Gb; Class II, Zone 21 AEx tb IIIC T108°C Db

- Limit Switch Boxes 48 Series with electrical ratings per Table below; Maximum Ambient Temperature Range -40°C to +60°C, Enclosure is Type 4X, IP66/IP67 rated

aa	b	-	c	d	e	f	g	h	i	j
aa = Market Designation										
MS = Mechanical Switch assembled in USA (F2)										
PS = Magnetic Proximity Switch assembled in USA (F2)										
IS = Inductive Proximity Switch assembled in USA (F2)										
BE = Mechanical Switch assembled in Italy (F3)										
BM = Magnetic Proximity Switch assembled in Italy (F3)										

BS = Inductive Proximity Switch assembled in Italy (F3)									
	b = Box Design								
	48 = 48 Series (this equipment)								
		-	**c = Conduit entry Type**						
		-	1 = ½" NPT (2 ports)						
		-	2 = M20 x 1.5 – 6H (2 ports)						
		-		**d = Switch quantity**					
		-		**2** = 2 switches					
		-		**3** = 3 switches					
		-		**4** = 4 switches					
		-			**e = Indicator Type**				
		-			S = Standard				
		-			L = L-port 3-way indicator				
		-			T = T-port 3-way indicator				
		-			A = Arrow 3-way indicator				
		-				**f = Housing material and color**			
		-				**A** = Aluminum, black			
		-				S = Stainless steel			
		-					**g = Switch Type & Sensor**		
		-					**0** = mechanical switch, Silver Plated Mechanical SPDT switch, 250Vac/dc max & 11Amax (50/60 Hz)		
		-					**S** = mechanical switch, Gold Plated Mechanical SPDT switch, 250Vac/dc max & 11A max (50/60 Hz)		
		-					**A** = inductive proximity switch, IFM Electronic NS5002 (IS-2002-N/OLED/1D/2G) rated 15Vdc & 50mA max.		
		-					**B** = inductive proximity switch, IFM Electronic IS5001 (IS-3002-BPOG) rated 10...36 Vdc & 200mA (3 wire PNP switch N.O.)		
		-					**D** = inductive proximity switch, IFM Electronic IS5026 (IS-2002-FROG/PH) rated 5..36Vdc, 200mA (2 wire PNP or NPN programmable)		
		-					**E** = inductive proximity switch, IFM Electronic IS0003 (IS-2002-AROA RT) rated 20..140Vac (47…63 Hz) or 10…140Vdc & 200mA max (2 wire inductive)		
		-					**F** = inductive proximity switch, Pepperl+Fuchs NJ2-V3-N Namur 2 wire rated 8.2Vdc & 3mA		
		-					**G** = inductive proximity switch, Pepperl+Fuchs NBB2-V3-E2 rated 30Vdc max & 100mA max (3 wire PNP N.O.)		
							H = inductive proximity switch, Pepperl+Fuchs NBB2-V3-Z4 rated 60Vdc max & 100mA max 2-wire		
							K = inductive proximity switch, Pepperl+Fuchs NBB2-V3-E3 rated 30Vdc and 100mA max (3 wire PNP N.C.)		
							L = inductive proximity switch, Pepperl+Fuchs, NBB2-V3-E0 rated 30Vdc & 100mA max (3 wire NPN N.O.)		
		-					**N =** inductive proximity switch, Pepperl+Fuchs NCB2-V3-N0 Namur, rated 8.2Vdc & 3mA		
		-					**M** = reed switch, HSI Sensing HSR-834W rated 240 Vdc & 4A max (molded in Stem E530 housing)		
							P = inductive proximity switch, IFM Electronic IS0004 (IS-0004-BROA) rated 20..140 AC/10..140 DC		
							R = magnetically operated reed switch (ex. HSR-834W) or other UL Recognized for US NRNT2 and Canada NRNT8; rated 250 Vdc, 11A max		
							Q = reed switch, HSI Sensing HSR-933W rated 250 Vdc & 3A max (molded in Stem E530 housing)		
		-						**h = Mounting means/bracket used**	
		-						Alpha or numeric symbols identifying mounting means	
									i = Board Options
									Blank = standard 7-8-7-8 terminal designations (Single Coil SV, pneumatic solenoid valve)
									1 = Circuit Board 7-8-7-9 terminal designations (Dual Coil SV, pneumatic solenoid valve)

									j = temperature designation
									Blank = standard temperature range -20°C to +60°C
									4 = low temperature range -40°C to +60°C

Conditions of Acceptability:

1. The electrical ratings of this equipment are limited by the lowest electrical ratings of the internal switch; the internal circuits must not exceed 250 V and 11 A.
2. The ambient temperature range of this equipment is limited by the ambient temperature range of the internal switch or by the Pneumatic Solenoid Valve when present. See Descriptive Report for details.
3. Electrically operated Pneumatic Solenoid Valve(s) used with this 48 Series Limit Switch must be suitably certified for the Hazardous (Classified) Area, and with input electrical ratings meeting or exceeding the electrical ratings of this application: product class 3228-01 for Canadian application & 3228-81 for US applications; alternatively, YTSX for US application & YTSX7 for Canadian application.
4. The voltage and current levels of the Pneumatic Solenoid Valves used with this equipment must not exceed 250 Vac max and 11 A max whether wired in series or in parallel.
5. Wiring to or from this device, which enters or leaves the system enclosure, must utilize wiring methods suitable for Class I, Division 1 Hazardous Locations, as appropriate for the installation, including wiring between the Limit switch box and Pneumatic Solenoid Valve.
6. Enclosure Environmental ratings are achieved when conduit entries are torqued to at least 90.4 Nm (800 lbs/inch) and fasteners (Class A2-50) to 40Nm (354 lbs/inch) not-lubricated conditions.
7. Certified or Listed switch and fuse, or Certified or Listed circuit-breaker, must be included in the final installation assembly where this unit will be installed, suitably located and easily reached, marked as the disconnecting device for the overall final system assembly providing overvoltage and overcurrent protection to the overall system assembly.
8. Grounding circuit must not be tied to Neutral circuit under any voltage application.
9. Equipment marked for use in Class I, Zone 1, Group IIC must be sealed with conduit sealing fitting at the enclosure within 2”
10. Flame-paths are not intended to be repaired.
11. This equipment has not been evaluated for Intrinsically Safe applications.

PART B:

Class I, Division 2, Groups A, B, C and D;
Ex nA IIC T5 Gc;
Class I, Zone 2 AEx nA IIC T5 Gc;

- Limit Switch Boxes 48 Series without mechanical switches. Electrical ratings per Table below; Maximum Ambient Temperature Range -40°C to +60°C, Enclosure is Type 4X, IP65 rated

aa	b	-	c	d	e	f	g	h	i	j
aa = Market Designation										
PS = Magnetic Proximity Switch assembled in USA (F2)										
IS = Inductive Proximity Switch assembled in USA (F2)										
BM = Magnetic Proximity Switch assembled in Italy (F3)										
BS = Inductive Proximity Switch assembled in Italy (F3)										
	b = Box Design									
	48 = 48 Series (this equipment)									
		-	**c = Conduit entry Type**							
		-	1 = ½" NPT (2 places)							
		-	2 = M20 x 1.5-6H (2 places)							
		-		**d = Switch quantity**						
		-		**2** = 2 switches						
		-		**3** = 3 switches						
		-		**4** = 4 switches						
		-			**e = Indicator Type**					
		-			S = Standard					
		-			L = L-port 3-way indicator					
		-			T = T-port 3-way indicator					
		-			A = Arrow 3-way indicator					
		-				**f = Housing material and color**				
		-				**A** = Aluminum, black				
		-				S = Stainless steel				
		-					**g = Switch Type & Sensor**			
		-					**B** = inductive proximity switch, IFM Electronic IS5001 (IS-3002-BPOG) rated 10...36 Vdc & 200mA (3 wire PNP switch N.O.)			
		-					**D** = inductive proximity switch, IFM Electronic IS5026 (IS-2002-FROG/PH) rated 5..36Vdc, 200mA (2 wire PNP or NPN programmable)			
		-					**E** = inductive proximity switch, IFM Electronic IS0003 (IS-2002-AROA RT) rated 20..140Vac (47…63 Hz) or 10…140Vdc & 200mA max (2 wire inductive)			
		-					**M** = reed switch, HSI Sensing HSR-834W rated 240 Vdc & 4A max, (molded in Stem E530 housing)			
							P = inductive proximity switch, IFM Electronic IS0004 (IS-0004-BROA) rated 20..140 AC/10..140 DC			
							R = magnetically operated reed switch (ex. HSR-834W) or other UL Recognized for US NRNT2 and Canada NRNT8; rated 250 Vdc, 11A max			
							Q = reed switch, HSI Sensing HSR-933W rated 250 Vdc & 3A max (molded in Stem E530 housing)			
		-						**h = Mounting means/bracket used**		
		-						Alpha or numeric symbols identifying mounting means		
									i = Board Options	

									Blank = standard 7-8-7-8 terminal designations (Single Coil SV, pneumatic solenoid valve)
									1 = Circuit Board 7-8-7-9 terminal designations (Dual Coil SV, pneumatic solenoid valve)
									j = temperature designation
									Blank = standard temperature range -20°C to +60°C
									4 = low temperature range -40°C to +60°C

Conditions of Acceptability:

1. The electrical ratings of this equipment are limited by the lowest electrical ratings of the internal switch; the internal circuits must not exceed 250 V and 11 A.
2. The ambient temperature range of this equipment is limited by the ambient range of the internal switch or the ambient range of the Pneumatic Solenoid Valve when present. See Descriptive Report for details.
3. Electrically operated Pneumatic Solenoid Valve(s) used with this 48 Series Limit Switch must be suitably certified for the Hazardous (Classified) Area, and with input electrical ratings meeting or exceeding the electrical rating of the final application: product class 3228-01 for Canadian application & 3228-81 for US applications; alternatively, YTSX for US application & YTSX7 for Canadian application.
4. The voltage and current levels of the Pneumatic Solenoid Valve used with this equipment must not exceed 250 Vac max and 11 A max whether wired in series or in parallel.
5. Wiring to or from this device, which enters or leaves the system enclosure, must utilize wiring methods suitable for Class I, Division 2 Hazardous Locations, as appropriate for the installation, including wiring between the Limit switch box and Pneumatic Solenoid Valve coils.
6. Enclosure Environmental ratings are achieved when conduit entries are torqued to at least 90.4 Nm (800 lbs/inch) and fasteners (Class A2-50) to 40Nm (354 lbs/inch) not-lubricated conditions.
7. Certified or Listed switch and fuse, or Certified or Listed circuit-breaker, must be included in the final installation assembly where this unit will be installed, suitably located and easily reached, marked as the disconnecting device for the overall final system assembly providing overvoltage and overcurrent protection to the overall system assembly.
8. Grounding circuit must not be tied to Neutral circuit under any voltage application.
9. Equipment marked for use in Class I, Zone 1, Group IIC must be sealed with conduit sealing fitting at the enclosure within 2”
10. Flame-paths are not intended to be repaired.
11. This equipment has not been evaluated for Intrinsically Safe applications.

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APPLICABLE REQUIREMENTS

CAN/CSA Standard C22.2 No. 0-10 August 2011	General Requirements – Canadian Electrical Code, Part II
CAN/CSA C22.2 No. 142-M1987 (Reaffirmed 2009)	Process Control Equipment – Industrial Products
UL 508 Seventeenth Edition	Industrial Control Equipment
CAN/CSA Standard C22.2 No. 25-M1966 Reaffirmed 2009	Enclosures for Use in Class II Groups E, F, and G Hazardous Locations
CAN/CSA Standard C22.2 No. 30-M1986 Reaffirmed 2007	Explosion-Proof Enclosures for Use in Class I Hazardous Locations Industrial Products
UL 1203 Fourth Edition	Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for use in Hazardous (Classified) Locations
CAN/CSA C22.2 No. 213-M1987 Reaffirmed 2008	Non-incendive Electrical Equipment for Use in Class I, Division 2, Hazardous Locations – Industrial Products
ANSI/ISA 12.12.01 – 2012 Approved 9 July 2012	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
CAN/CSA-C22.2 No. 60079-0:11 (IEC 60079-0:2007, MOD)	Explosive atmospheres - Part 0: Equipment - General requirements
CAN/CSA-C22.2 No. 60079-1:11 (IEC 60079-1:2007, MOD)	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures “d”
CAN/CSA-C22.2 No. 60079-15:12 (IEC 60079-15:2005, MOD)	Electrical apparatus for explosive gas atmospheres - Part 15: Construction, test and marking of type of protection “n” electrical apparatus
CAN/CSA-C22.2 No. 60079-31:12 (IEC 60079-131:2008, MOD)	Explosive atmospheres — Part 31: Equipment dust ignition protection by enclosure “t”
ANSI/ISA-60079-0 (12.00.01)-2009	Explosive atmospheres - Part 0: Equipment - General Requirements
ANSI/ISA-60079-1 (12.22.01)-2009	Explosive Atmospheres - Part 1: Equipment Protection by Flameproof Enclosures “d”
ANSI/ISA-60079-15 (12.12.02)-2012	Electrical Apparatus for Use in Class I, Zone 2 Hazardous (Classified) Locations: Type of Protection "n"
ANSI/ISA-60079-31 (12.10.03)-2009	Explosive Atmospheres – Part 31: Equipment Dust Ignition Protection by Enclosure “t”
CAN/CSA Standard C22.2 No. 94.1-07 and Harmonized ANSI/UL Standard 50 1st Ed. – Sep. 2007 & update No. 1, July 2008	Enclosures for Electrical Equipment, Non-Environmental Considerations
CAN/CSA Standard C22.2 No. 94.2-07 and Harmonized ANSI/UL Standard 50E 1st Ed. – Sep. 2007 & update No. 1, July 2008	Enclosures for Electrical Equipment, Environmental Considerations
CAN/CSA C22.2 No. 60529:05	Degrees of protection provided by enclosure (IP Code)
ANSI/ISA 60529:05	Degrees of protection provided by enclosure (IP Code)

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Nameplate information:

Markings appear on a minimum 0.02 inch thick aluminum or stainless steel nameplate, secured to the outside of the enclosure using non-removable fasteners in blind holes. The following marking details can be stamped, etched, silkscreened, molded or embossed on the nameplate:

- Manufacturer Name: “Max-Air Technologies”, or CSA Master Contract Number”218481”, adjacent to the CSA Mark in lieu of manufacturer’s name
- Model number: As specified in the PRODUCTS section above.
- Electrical Ratings: As specified in the PRODUCTS section above.
- Ambient temperature rating: As specified in the PRODUCTS section above.
- Manufacturer date in MMYY format, or serial number, traceable to month of manufacture.
- Enclosure ratings: As specified in the PRODUCTS section above.
- The CSA Mark with or without “C” and “US” indicators, as shown on the Certificate of Conformity.
- Hazardous Locations designation(s): As specified in the PRODUCTS section above: Divisions classification or Zones classification or both.
- Temperature code: As specified in the PRODUCTS section above, optional marking
- Terminal Designations adjacent to each field wiring terminal
- The ground designation “GND” or equivalent adjacent to the equipment terminal
- The caution symbol “⚠ ” next to terminal blocks to warn users to see installation instruction regarding terminal pins and designations.
- The following words for “**PART A**” equipment:
  - “*Open circuit before removing cover”* and “*Circuit ouvert avant de retirer le couvercle*” or *“Keep cover tight while circuits are alive”* and “*Gardez couvercle etanche tandis que les circuits sont vivant*” or equivalent.
  - “*Seal required within 18 inches”* and “*Seal neccesaire dans les 18 pouces*” or equivalent on units marked for use in Division 1.
  - “*Seal required within 2 inches”* and “*Seal neccesaire dans les 2 pouces*” or equivalent on units marked for use in Zone 1, or both Zone 1 and Division 1.

- The following words for "**PART B**" equipment:

- *"WARNING – EXPLOSION HAZARD – Substitution of components may impair suitability for Class I, Division 2"* and *"AVERTISSEMENT – RISQUE D'EXPLOSION – La substitution de composants peut rendre ce materiel inacceptable pour les emplacements de Classe I, Divisions 2*" or equivalent
- *"WARNING – EXPLOSION HAZARD – Do not disconnect while circuit is alive unless area is known to be nonhazardous"* and *"AVERTISSEMENT – RISQUE D'EXPLOSION – Ne pas debrancher tant que le circuit est sous tension, a moins qu'il ne s'agisse d'un emplacement non dangereux"* or equivalent

Supplement to Certificate of Compliance

Certificate: 2615594 **Master Contract:** 218481

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
70187900	August 23, 2019	Update to report 2615594 to include alternate O-rings material and O-ring size, revised equipment ambient temperature range (from *-20°C to +60°C* to *-40°C to +60°C*) for switches deemed suitable to -40°C, revision to the nomenclature table, addition of Zone 1, Group IIC classification, and clarification of switch ratings and switch classifications.
70012284	Nov 21, 2014	Update to report 2615594 with alternate internal switches and PCBs.
2631365	June 10, 2013	Update to report 2615594 with alternate internal switches.
2615594	May 23, 2013	New model certification of Limit Switch Box 48 Series for use in Classified Hazardous Locations