



**METAL BODY SWITCHES**



# Certificate of Compliance

<b>Certificate:</b>	1773875	<b>Master Contract:</b>	150638
<b>Project:</b>	70170847	<b>Date Issued:</b>	2018-11-05
<b>Issued to:</b>	Cleveland Controls Division of UniControl, Inc. 1111 Brook Park Road Cleveland, Ohio 44109 USA Attention: Frank Lyzen		

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.*



Issued by: *Vasyl Dykhman*  
Vasyl Dykhman

**PRODUCTS**

- CLASS 4813 02** - TEMPERATURE-INDICATING AND REGULATING EQUIPMENT-  
Other Than Appliance Type
- CLASS 4813 82** - TEMPERATURE-INDICATING AND REGULATING EQUIPMENT-  
Other than Appliance Type - Certified to US Standards

**Part A**

DFS series followed by -HCO, -LCO, -221, -223, -229, -231, -243, -267, -292, -295, -296, -297, -301, -302, -411, -423, -435, -436, -448, -458 Pressure operated Air Switch

FS series followed by -BO, -ABO, -CO, -CO-114, -BBO, -HDO, -LDO, -106, -107, -108, -109, -110, -171, -172, -179, -180, -185, -224, -412, -416, -435, -751, -1000 Pressure operated Air Switch

ANA series followed by -100, -101, -102, -103 to 500, -1000 Pressure operated Air Switch

AFS Series followed by -A, -AO, -D-AO, -145, -146, -147, -148, -150, -154, -155, -156, -159, -163, -165, -170, -173, -175, -179, -180, -181, -184, -186, -187, -188, -190, -191, -195, -202, -203, -204, -208, -209, -210, -211, -212, -213, -214, -216, -218, -219, -222, -223, -225, -226, -227, -228, -232, -233-34, -233-35, -234, -235, -236, -237, -238, -239, -240, -242, -244, -246, -247, -249, -252, -256, -257, -259, -262, -264, -265, -266, -268, -270, -

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271, -272, -273, -275, -279, -281 to 289, -291, -293, -294, -296, -298, -299, -303, -304, -316, -317, -318, -319, -350 to -355, -398, -400, -403, -405, -409, -410, -414, -415, -417, -418, -421, -423, -425, -427 to 438, -440, -441, -442, -445, -447, -449, -450, -451, -452, -460, -460, -DSS, -461, -477, -449, -460, -477, -492, -493, -531 to -540, -550 to -575, -941, -950, -951, -960, -961, -970, -971, -975, -976, -980, -981, -984 Pressure Operated Air Switches

RFS series followed by 4000 to 4400 Pressure operated Air switch

GRFS series followed by 4000 to 4400 Pressure operated Switch for Air or natural or LP-Gas

PSG series followed by -100, -102, -103, -104, -105 Pressure operated Switch for Air or natural or LP-Gas

PS series followed by -306, -307, -308, -309, -310, -311, -312 Pressure operated Air switch

**Note:**

1. Additional suffix following the three digit or letter suffix designation indicate minor variations such as color customer marking, etc which do not affect operation.
2. Pressure operated switches intended for use with heating equipment. They are suitable for use in safety applications as combustion air or gas interlocks. The controls operate either on pressure, differential pressure or vacuum.
3. PSG and GRFS series switches are intended for use with air or natural or LP gas with pressure applied to high side of switch only.
4. FS, DFS, AFS, and ANA series switches are intended for use only as air operated switches. These series are nonadjustable with fixed differential.
5. AFS-460 and AFS-461 are manual reset controls

**Ambient Temperature:** Model DFS may have either of the following rating, according to performance group (See att6 page 103 to 120)

Ambient Temp	Performance Group/Model Number
-40 °F to 180 °F	3, 6, 8, 11, 14, 16, 27, 28, 32, 60, 61, 62, and 64
0 °F to 180 °F	9, 13, 15, 23, 25, 26, 29, 31, and 63

Air flow probe (Att 6 page 70) is rated 180°F normal and 300°F abnormal.

RFS Series of pressure switches are for use in ambient temperature of -40 °F to 180 °F.

**Pressure Rating:**

PS 306 to 312: 0.05 in WC

RFS Sires: 0.10 in WC to 5.0 in WC and 0.10 in WC to 20.0 in WC

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FS	DFS	Model Series			PSG	Operating Pressure (In WC)	Manufacturer's Performance group See Att 6 page 103 to 120
		ANA	AFS				
X	X	X	O	O	0.05 ± 0.02	3	
X	X	X	O	X	0.10 ± 0.05 9	9	
X	X	X	O	O	0.08 ± 0.03 11	11	
X	X	X	O	X	0.20 ± 0.04 25	25	
X	X	X	O	X	0.20 ± 0.04 26	26	
X	X	X	O	O	0.20 ± 0.04 27	27	
X	X	X	O	O	0.40 ± 0.08 28	28	
O	O	X	X	O	0.05 ± 0.02 - 12.0 6	6	
O	O	X	X	O	0.05 ± 0.02 - 2.0 8	8	
O	O	X	X	X	0.10 ± 0.05 - 12.0 13	13	
O	O	X	X	O	0.08 ± 0.03 - 12.0 14	14	
O	O	X	X	X	0.10 ± 0.05 - 2.0 15	15	
O	O	X	X	O	0.08 ± 0.03 - 2.0 16	16	
O	O	X	X	X	0.20 ± 0.04 - 12.0 29	29	
O	O	X	X	X	0.20 ± 0.04 - 2.0 21	21	
O	O	X	X	O	0.20 ± 0.04 - 2.0 32	32	
O	O	O	X	O	0.05 - 1.25 ± 0.1 8	8	
O	O	O	X	O	0.15 ± 0.03 - 12.0 60	60	
O	O	O	X	O	0.15 ± 0.03 - 12.0 61	61	
X	X	O	O	O	0.04 ± 0.02 62	62	
X	X	O	O	O	0.25 ± 0.01 63	63	
O	O	O	X	O	0.05 ± 0.02 - 16.0	64	
O	O	X	X	O	0.05 ± 0.02 - 1.0	16	

**Note:**

1. X- Provided  
O – Not Provided
2. Non-adjusted set point as indicated, or factory set on the range indicated.
3. Manufacturer maintains records covering the specific performance group, mounting bracket arrangement and gas and vent connection arrangement for each switch model number
4. Maximum body Pressure: All models (Expect RFS Series), 1/2 PSIG. RFS Series maximum body pressure , 0.723 PSIG

**Electrical Rating:**

All model other than specified below are rated 300VA pilot duty, 120 to 277Vac, 10A non-inductive, 0 to 277Vac. (on switches that employ the micro switch part number BZ-TRW8435 Series snap switch, the non-inductive rating is 15A 0 to 277Vac).

AFS-460, -46-DSS, -461: rated 15A, 120 to 480Vac; 1/4 HP, 120Vac; 1/2 HP 240Vac; 1/2A 120Vac; 1/4A 240Vac.

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Model DSF-302, AFS-316-319 30mA, 24Vdc max 15A, 120 to 480Vac; 1/4 HP, 120Vac; 1/2 HP 240Vac; 1/2A 120Vac; 1/4A 240Vac. (on switches that employ the micro switch part no BZ2RW84203-A2 series snap switch have a rating the same as AFS 316-319 listed above(DC rating listed for 6000 cycle))

PS 306 THROUGH 312: 5A Resistive 120 to 277Vac 1.2A steady state, 11.6A inrush at 120Vac or 4.2 A steady state, 12.2A inrush at 24Vac

RFS series: 15 A resistive, SPDT 120 to 277Vac, 300 VA Pilot duty at 115 to 277Vac.

All BZ- switch may additionally be rated SPDT –NO, SPST-NC maximum 6.1A, 50.1A inrush 24Vac, pilot duty

DFS-350 to 355 employ Honeywell micro switch model no BZ-Rw8435144-A2 snap switch and may be additionally rated 10mA at 5Vdc.

**Conditions of Acceptability:**

1. This equipment is Certified as a “open” type component for use in other equipment, where suitability is determined in the end use by CSA.
2. All models which do not have provisions for attachment of conduit are for use within equipment which will provide a suitable overall electrical enclosure.
3. The attachment of leads to quick-connect terminals shall comply with the requirements regarding temperature and secureness applicable to the class of equipment involved. These terminals are not acceptable for field wiring.
  - a. The screw terminals are suitable for field wiring with copper conductors only, if field wiring is to be connected to the terminals, the control shall be marked "Use Copper Conductors Only". The suitability of aluminum wiring shall be determined in the end-use application.
4. On models which do not have threaded fittings for connections of piping, the suitability of connections to the unthreaded nipples shall be determined on the application.
5. The Model AFS Series and some PSG Series controls have adjustable pressure settings with no indicator or dial for the set point. Also, at minimum setting the operating pressure may vary approximately 40 percent of the marked minimum operating pressure. These features shall be considered when determining the suitability of the switches on an appliance.
6. For use in higher than room ambient up to 180°F, the controls which are not provided with pigtail leads are to be wired using conductors with a temperature rating of 90°C.
7. The pigtail leads provided on some models shall be provided with a suitable strain relief means on the end-use application to prevent stressing the terminals.
8. The air flow probe (Fig. 13) may employ an epoxy and, therefore, has a maximum normal temperature rating of 180°F and a maximum abnormal rating (short term such as during a fan failure condition) of 300°F. The temperature on the epoxy securing the sensing tube should be measured during tests on the appliance. If the sampling tube of the probe is welded to its mounting plate (see Fig. 13), then the temperature limitation does not apply. In this case, the procedure for the appliance must describe the probe as having a welded joint.
9. The air flow probes employing epoxy to secure the sampling tube to the mounting plate do not provide bonding to ground of the sampling tube. The epoxy may insulate the tube from the mounting plate. Therefore, probes employing epoxy shall not be used in locations where they are liable to become energized, or a suitable means of bonding the tube to ground shall be provided on the appliance and





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described in the appliance Procedure. If the probe employing a welded construction is liable to become energized, the appliance Procedure shall described the probe as having a welded construction to ensure bonding to ground.

10. The caps used on the Model AFS-452 have not been tested for secureness. The suitability of these caps shall be determined in the end use application of the switch.
11. The suitability of the optional pilot lamps across the contacts of the AFS-222 control shall be determined in the end use application of the switch.
12. The air flow switches are to be mounted with the diaphragm in a vertical plane. The suitability of the mounting bracket or other mounting means provided shall be determined.
13. The switches may be used at the marked rating of the snap switch provided on the control for applications requiring 6000 cycle of operation as SPST switches.
14. When the time delay ancillary board is provided as part of the pressure switch, the complete model number and suffixes shall be described. The time delay ancillary boards are not intended to be used as safety interlocks since failure of components may result in the relay not switching its contacts. The pressure switches with the ancillary boards are for use in ambient up to 140 °F and have electrical ratings based upon the relay used. The DPDT relay board may be used as a safety interlock when the Omron G2RL-24-CF relay is used. The ratings are 8A, 277Vac General Purpose or Resistive when the Omron G2RL-24-CF relay is used.
15. The time delay feature for the 24 V and 120 V versions described in ILLs. 58-71 and 74-84 have not been evaluated as safety timing.

**Part B:**

- DFSH series followed by -CO Pressure operated Air Switch
- DFSL series followed by -CO Pressure operated Air Switch
- FSH series followed by -CO, -DO Pressure operated Air Switch
- FSL series followed by -CO, -DO Pressure operated Air Switch
- FS series follower by -BO, -ABO Pressure Operated Air Switch

**Size and rating:**

Type	Operating Pressure In. Water	Operating Pressure differential In Water	Draft Tube Connection
FS-BO	0.1	--	1/4 NPT
FSL-CO	0.1	--	1/8 NPT
FSH-CO	0.4	--	1/8 NPT
FS-ABO	0.4	--	1/4 NPT
DFSL-CO	--	0.10	1/4 NPT, 1/8 FPT
DFSH-CO	--	0.10	1/4 NPT, 1/8 FPT
FSL-DO	0.2	--	1/4 NPT
FSH-DO	0.2	--	1/4 NPT

**Electrical Rating:** 300 VA Pilot Duty at 115, 208, 230 and 277Vac, 6000 cy, 10A at 277 V non inductive.

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**Ambient temperature:** -40°F to 180°F

**Maximum rated pressure:** 1/2 PSI

**Part C:**

LD-B series follower by -B, -BO, -120-B, -120-BO, -132-B, -132-BO Pressure operated Air Switch  
 PD-B series follower by -B, -BO, -120-B, -120-BO, -132-B, -132-BO Pressure operated Air Switch  
 VS-A series follower by -B, -BO, -120-B, -120-BO, -132-B, -132-BO Pressure operated Air Switch  
 SLD series follower by -B, -BO, -119-B, -120-B, -120-BO, -132-B, -132-BO Pressure operated Air Switch  
 SPD series follower by -B, -BO, -120-B, -120-BO, -132-B, -132-BO Pressure operated Air Switch

**Suffix Designation:**

Suffix	Comment
-B (Without number)	Supplied with case and calibrated with air fitting at top
-BO (Without number)	No case supplied and calibrated with air fittings at top
-120 (Plus letter above)	Calibrated with air fitting to side
-132 (Plus letter above)	Calibrated with air fitting at bottom

Pressure switch may be shipped with a sampling air flow probe

**Pressure Rating:**

Model	Minimum setting In. WC	Maximum pressure In. WC	Ambient Temperature Degree F
PD-B, SPD	0.04	5.0	180
LD-B, SLD	-0.04	2.0	180
VS-A	0.04	5.0	180
SLD-119-B	-1.5	-5.0	180
Air flow probe	---	---	180°F Normal and 300°F abnormal

**Note:**

1. Switch contact rating, 125 VA pilot duty at 115/230Vac, 10A at 277Vac non-inductive
2. This switch has differential of 0.02 In. WC

**Conditions of Acceptability:**

1. Field wire to be installed so as to not interfere with moving parts of the control. If field wiring is to be connected to the terminals, the control shall be marked "Use Copper Conductors Only", and if aluminum wiring is used, the suitability of this wiring shall be determined in the end-use application.
2. Models SLD-BO and SPD-BO shall be installed in an enclosure of adequate structure with spacing of at least 1/2 in. maintained from live parts to the enclosure.





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3. The air flow probe may employ an epoxy and, therefore, has a maximum normal temperature rating of 180°F and a maximum abnormal rating (short term such as during a fan failure condition) of 300°F. The temperature on the epoxy securing the sensing tube should be measured during tests on the appliance. If the sampling tube of the probe is welded to its mounting plate, then the temperature limitation does not apply. In this case, the procedure for the appliance must describe the probe as having a welded joint.
4. The air flow probes employing epoxy to secure the sampling tube to the mounting plate do not provide bonding to ground of the sampling tube. The epoxy may insulate the tube from the mounting plate. Therefore, probes employing epoxy shall not be used in locations where they are liable to become energized, or a suitable means of bonding the tube to ground shall be provided on the appliance and described in the appliance procedure. If the probe employing a welded construction is liable to become energized, the appliance procedure shall describe

**Part D:**

DDP series followed by -100, -103, -104, -105, -106, -109, -111 Pressure operated Air Switch

**Pressure Rating:**

Model	Operating In. Water Side A	Pressure Column Side B	Manufacture's Performance Group (See att 7 page 25, and 35-38)	Ambient Temperature Degree F
DDP-100, -104	0.11-2.0	0.11-2.0	1600	-40 to 176
DDP-103	0.11-12.0	0.11-12.0	1400	-40 to 176
DDP-105, -111	0.07-12.0	0.07-12.0	600	-40 to 176
DDP-106, -109	0.07-2.0	0.07-2.0	800	-40 to 176

**Maximum Body Pressure:** 1/2 PSI

**Electrical Rating:** 300VA Pilot Duty, 115 to 277Vac; 15A, Non- Inductive, 0 to 277Vac

**Conditions of Acceptability:**

1. All models which do not have provisions for attachment of conduit are for use with equipment which will provide a suitable overall electrical enclosure.
2. The attachment of leads to quick-connect terminals shall comply with the requirements regarding temperature and secureness applicable to the class of equipment involved. These terminals are not acceptable for field wiring. These terminals are intended for use with copper conductors only. If aluminum wiring is used, the suitability of this wiring shall be determined in the end-use application.
3. On models which do not have threaded fittings for connections of piping, the suitability of connections to the unthreaded nipples shall be determined on the application.
4. The Model DDP Series have adjustable pressure settings with no indicator or dial for the set point. Also, at minimum setting the operating pressure may vary approximately 40 percent of the marked minimum





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operating pressure. These features shall be considered when determining the suitability of the switches on an appliance.

5. For use in higher than room ambient up to 130°F, the controls are to be wired using conductors with a temperature rating of 90°C.
6. Connections to threaded fittings on the pressure switches shall be made using a torque not greater than 20 in.-lb and shall be controlled during installation on the appliance.
7. The screw terminals are suitable for field wiring with copper conductors only. If field wiring is to be connected to the terminals, the control shall be marked "Use Copper Conductors Only".

### **APPLICABLE REQUIREMENTS**

CSA Std. C22.2 No. 24-15  
UL Std. No. UL 353

Temperature-Indicating and Regulating Equipment  
Limit Controls (5th Ed.)

### **MARKINGS**

See CSA Report

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## Supplement to Certificate of Compliance

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*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
70170847	2018-11-05	Update report to C22.2 No. 24-15 as per CSA Certification Notice No. 15, correct pilot duty rating to 300VA for all models other than specified, add alternate plastic material and change ambient temperature to 176F for DDP series, and add accessories 24Vac and 120Vac programmable timer modules for RFS series switches.
70063041	2016-09-08	Evaluate and update report with latest revision of UL report. Also, Update report to add alternate component and previously evaluated model's critical component description as per FIR April 11, 2013.
2323863	2013-08-06	Added models AFA-531-540, PS-306 to 312 and RFS 4000 to 4400. Changed classes from 3231-02/82. Removed Factory Dielectric Test requirement. Updated UL report attachments. In accordance with UL 353 and CSA C22.2 No. 24. Cleveland Lab.
2323863	2013-08-06	Added models AFA-531-540, PS-306 to 312 and RFS 4000 to 4400. Changed classes from 3231-02/82. Removed Factory Dielectric Test requirement. Updated UL report attachments. In accordance with UL 353 and CSA C22.2 No. 24. Cleveland Lab.
1773875	2006-04-12	Report update to factory audit dated December 15, 2005
1313869	2002-05-08	Report LR18754-37 update, supersedes report LR18754-37.
1271916	2002-02-11	Update to Report LR 18754-37 to include model AFS-460-DSS
1092418	2000-05-19	Update to Report LR 18754-37 to include new model DFS-302.

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