Alco Controls™

FF 4 Pressure Controls 0.11 to 250 bar

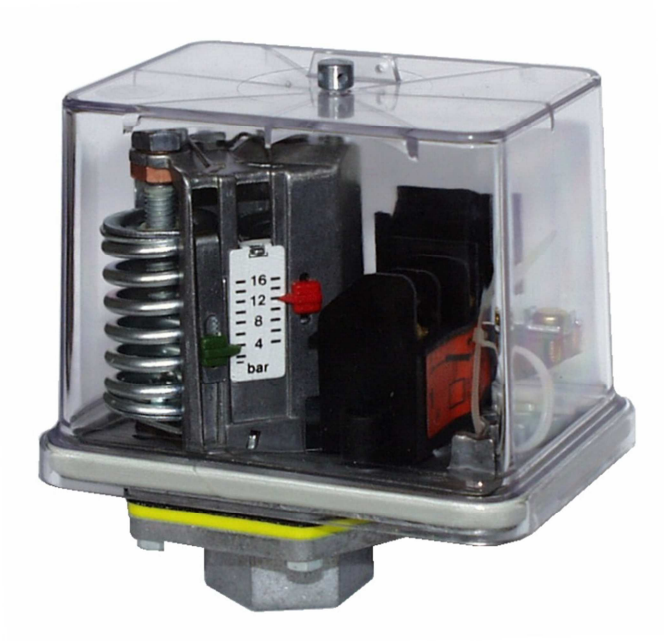
Technical Bulletin

Applications:

- Air compressors
- Water pumps
- Booster pumps
- Fire-fighting equipment
- Oil supply equipment
- High-pressure cleaning apparatus

Features

- Large space for cable mounting
- Easy to adjust
- Separate screw for upper and lower switching-point setting
- Accurate scale
- Transparent, UV-resistant cover
- Protection class: IP65
- Worldwide approvals
- High repeatability of set switch-points



FF 4
Pressure Controls 0.11 to 250 bar

Introduction

ALCO FF 4 series of pressostats are suitable for a wide range of industrial and commercial applications. Their functions, as pressure switches, limiters or cut-outs can be utilized for:

- Monitoring and controlling the pressure of liquid or gaseous media in pipelines, tanks, vats, pressure vessels and apparatus.
- Duties in process control, cooling, pneumatics and hydraulics.
- Pressure monitoring of cooling circuits and lubrication systems on various types of machinery.
- Automatic switching of pump and compressor motors for supplying water to dwellings, booster pumps, fire-fighting equipment and on compressed air systems.

Mode of operation

The pressure of the monitored medium operates against a flat diaphragm, bellows or a plunger (depending on pressure range). A system of levers and springs works on a snap-action cascade switch of high resistance to vibration, ensuring flutter-free switching.
Low pressure on the diaphragm closes contact 1-2. This can be used as a ”RUN” signal for a pump or compressor motor.
If pressure exceeds the upper switching-point, contact 1-2 opens and contact 1-4 closes. The applied motor will be switched off. Contact 1-4 is often used to indicate the ”off” condition.
Contact 1-2 will close again, when the pressure on the diaphragm has decreased below the set lower switch-point.

Included in standard units:

Rubber grommet with hole for cable entry
Nylon strap to secure cable
Installation an operating instructions

Upper and lower switch points can be adjusted independently of each other using a screwdriver. The two switch points are indicated on the scale inside the unit.

Construction

Pressure connection, pressure sensing element, switch mechanism and electrical terminals are fitted on a silumin base. Scale and switch are protected against environmental effects by an impact-resistant, transparent polycarbonate cover, which is creepage resistant (CTI 200/100M) and can be lead-sealed.

New: Pressure connector ”Y”, made out of plastic for demineralized water applications.

Options upon request

- Gold plated contacts
- Cable gland Pg 13,5 for higher protection IP 65
- Indicator lamp for switching condition
- Viton diaphragm for aggressive media
- Manual reset
- GL -approved versions
- UL-/CSA-approved versions
- Throttle section H138-043 for FF 4-2 to FF 4-32
- Other pressure connectors. Contact your local ALCO CONTROLS wholesaler for availability
- Special screw for lead seal cover

FF 4 Pressure Controls 0.11 to 250 bar

Type	Part Code Nr.	Upper switch point adjustable from ... to bar	Lower switch point adjustable from ... to bar	Smallest differential at lower ... higher end of range		max. operating pressure bar	max. test pressure bar	Standard settings bar
Pressure controls with perbunan diaphragm for mineral oils, water and air. Pressure connector: H (G $^3/_8$" female, DIN ISO 228/I)								**VDE 0660, EN 60947-5-1**
FF 4-2 DAH	0 182 129	0.11 ... 2	0.04 ... 1.89	0.07	0.11	20	40	0.5 / 1.5
FF 4-4 DAH	0 182 131	0.22 ... 4	0.07 ... 3.75	0.15	0.25	24	40	1 / 3
FF 4-8 DAH	0 182 143	0.5 ... 8	0.2 ... 7.5	0.3	0.5	30	40	2 / 6
FF 4-16 DAH	0 182 156	1 ... 16	0.4 ... 15	0.6	1	36	48	4 / 12
FF 4-32 DAH	0 182 168	2 ... 32	0.8 ... 30	1.2	2	52	64	10 / 20
Pressure controls with perbunan diaphragm and plastic pressure connector for demineralized water. Pressure connector: Y (G $^3/_8$" female, DIN ISO 228/I)								**VDE 0660, EN 60947-5-1**
FF 4-2 DAY	0 714 440	0.11 ... 2	0.04 ... 1.89	0.07	0.11	6	12	0.5 / 1.5
FF 4-4 DAY	0 714 441	0.22 ... 4	0.07 ... 3.75	0.15	0.25	8	12	1 / 3
FF 4-8 DAY	0 714 442	0.5 ... 8	0.2 ... 7.5	0.3	0.5	12	16	2 / 6
FF 4-10 DAY	0 714 475	0.7 ... 10	0.3 ... 9.2	0.4	0.8	12	16	4 / 5
FF 4-16 DAY	0 714 443	1 ... 16	0.4 ... 15	0.6	1	20	24	4 / 12
High pressure controls with plastic plunger These pressure switches operate with a plastic plunger, which is resistant to detergents, de-greasing and polish-removal agents. The **FF 4-60 PAH ... FF 4-250 PAH** pressostats are thus **particulary suitable for use on high-pressure cleaning apparatus**. Throttle screw H 115-115.001 is fitted as standard inside the pressure connection on these units. This must be removed for use with viscous media. Pressure connector: H (G $^3/_8$" female, DIN ISO 228/I)								**VDE 0660, EN 60947-5-1**
FF 4-60 PAH	0 183 412	8 ... 60	4 ... 52	4	8	100	120	20 / 40
FF 4-120 PAH	0 183 424	16 ... 120	8 ... 104	8	16	200	240	20 / 80
FF 4-250 PAH	0 038 594	30 ... 250	14 ... 226	12	24	400	500	100 / 200

Pressure controls with perbunan diaphragm **VDE 0170/0171, VDE 0660, EN 60947-5-1**

Flat diaphragm, resistant to mineral oils. UL-file: E 85 974

Pressure connector: F (¼"-18 NPTF per ANSI B 1.20.3 - 1976)

Type	Part Code Nr.	Upper switch point adjustable from ... to P.S.I.G	Lower switch point adjustable from ... to P.S.I.G	Smallest differential at lower ... higher end of range		max. operating pressure P.S.I.G	max. test pressure P.S.I.G	Standard settings P.S.I.G
FF 444-V1 DAF	0 097 308	1 ... 29	½ ... 27	1	2	290	580	7 / 22
FF 444-V2 DAF	0 097 309	3 ... 58	1 ... 54	2	4	348	580	14 / 44
FF 444-V3 DAF	0 097 310	7 ... 116	3 ... 109	4	7	435	580	29 / 87
FF 444-V4 DAF	0 097 311	15 ... 232	6 ... 218	9	14	522	696	58 / 174
FF 444-V5 DAF	0 097 312	29 ... 464	12 ... 435	17	29	769	928	145 / 290
FF 444-V6 PAF	0 153 299	116 ... 870	58 ... 754	58	116	1450	1740	290 / 580
FF 444-V7 PAF	0 153 300	232 ... 1740	116 ... 1508	116	232	2900	3480	290 / 1160
FF 444-V8 PAF	0 153 301	435 ... 3625	203 ... 3277	174	348	5800	7250	1450 / 2900

Pressure controls for fire-protection plant **VdS-approved**

Especially demanding requirements regarding quality and functional reliability are placed on pressure switches intended for pressure monitoring on fire-protection equipment.

FF 4-.. VdS are approved for use in fixed watersprinkler installations by the German Association of Insurers (Verband der Sachversicherer)

FF 4-2 VdS is a typical alarm pressure switch. The setting range is limited to 1 bar. Differential lever and spring are omitted to assure a minimum resetting differential.

FF 4-10 VdS and FF 4-16 VdS pressure switches limit the switching differential to 1.5 bar maximum.

Pressure connector: I (G ½ female, DIN ISO 228/I)

Type	Part Code Nr.	Upper switch point adjustable from ... to bar	Lower switch point adjustable from ... to bar	Smallest differential at lower ... higher typ bar	max bar	max. operating pressure bar	max. test pressure bar	Standard settings bar
FF 4-2 VdS DAI	3 334 200	0.5 ... 1	0.4 ... 0.9	0.1 fixed		20	40	0.6 / 0.7
FF 4-10 VdS DAI	3 318 700	0.7 ... 10	0,3... 8.5	0.5	1.5	32	40	4 / 5
FF 4-16 VdS DAI	3 334 300	1 ... 16	0.4 ... 15	0.8	1.5	36	48	11 / 12

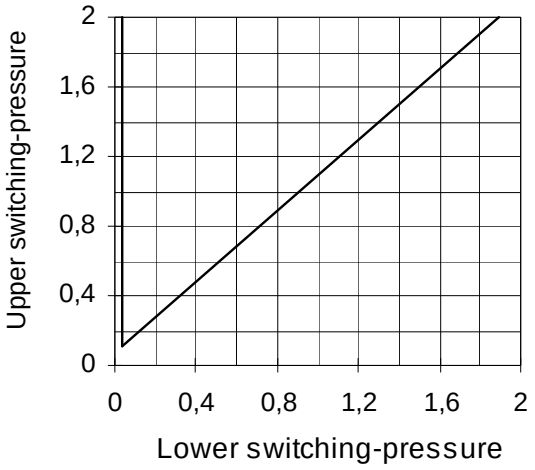
Technical data

Rated operational current at 230 V	
Non-Inductive Amp. (AC1)	16 A
Inductive Amp. (AC15)	6 A
Inductive Amp. (DC11)	0.1 A
Motor rating, Full load Amp. (FLA)	10 A
Motor rating, Locked rotor Amp. (LRA)	60 A

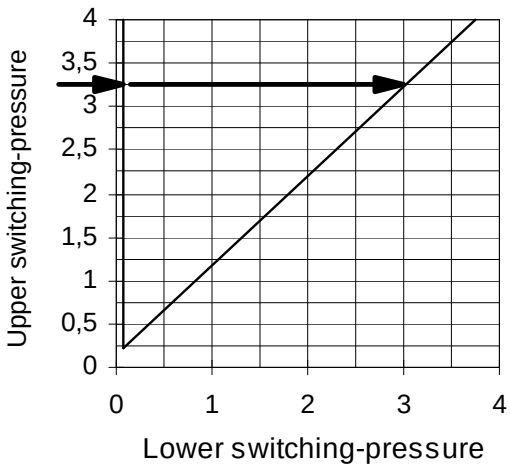
Protection to DIN 40 050 T9 / IEC 529	
with rubber grommet	IP 54
with cable gland Pg 13.5 or appliance socket	IP 65
Ambient temperature range, standard pressure connector	-20...+70°C
Ambient temperature range, plastic pressure connector	0...+50°C
Resistance to vibration, 10 to 1000 Hz	4g

Switch Point Diagrams (all units in bar)

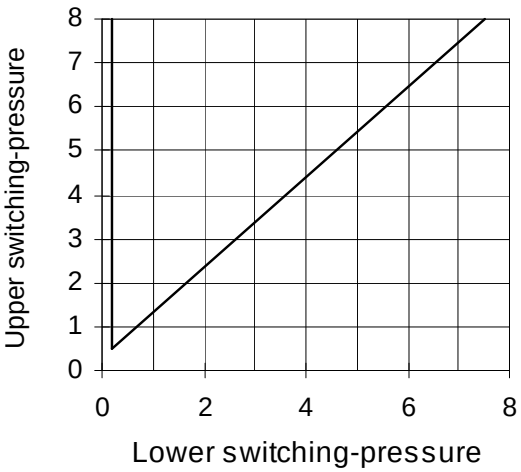
FF 4-2



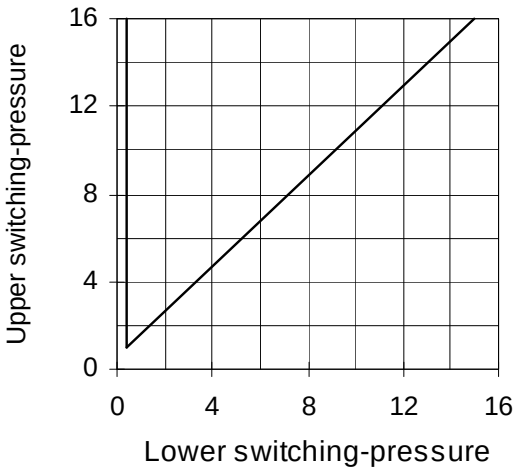
FF 4-4



FF 4-8



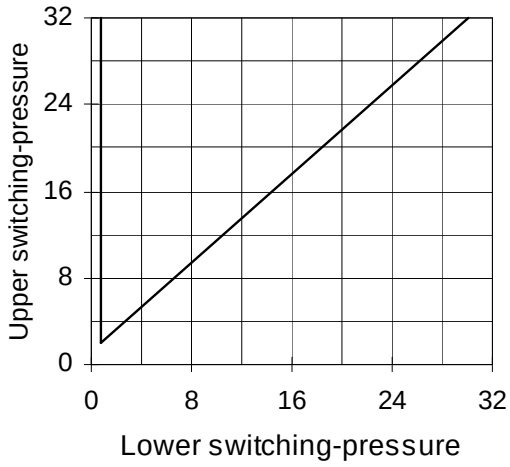
FF 4-16



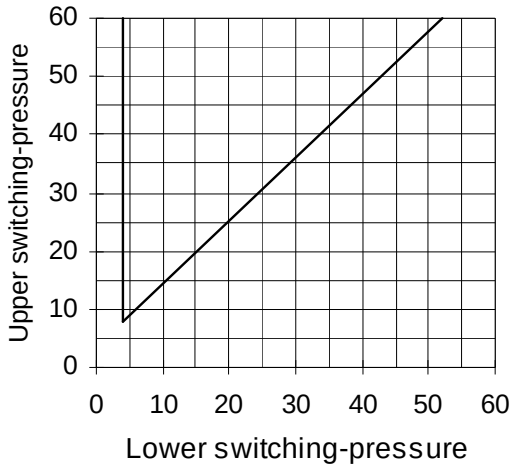
Above charts show the smallest adjustable differential.

Example per figure FF 4-4:
If upper setting is at 3.25 bar, lower setting can be adjusted between 0.07 and 3.0 bar (see arrows in the drawing).

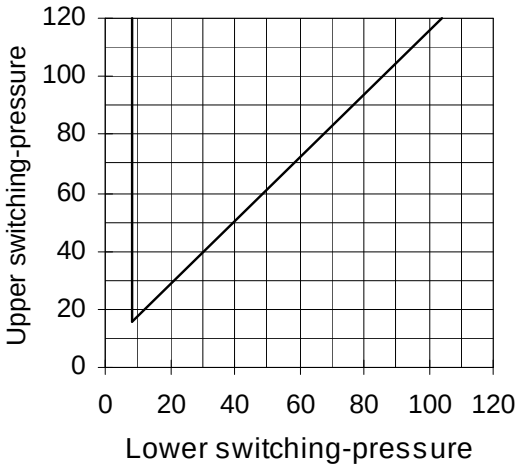
FF 4-32



FF 4-60

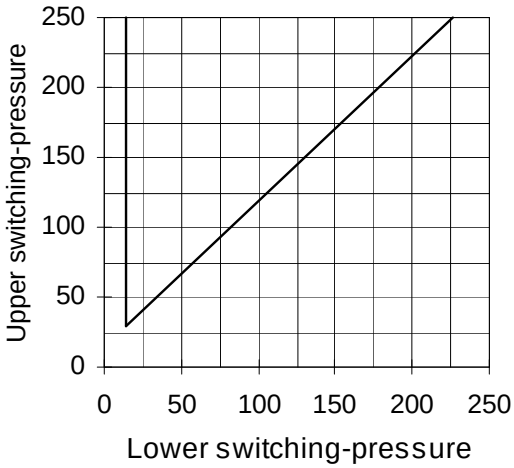


FF 4-120

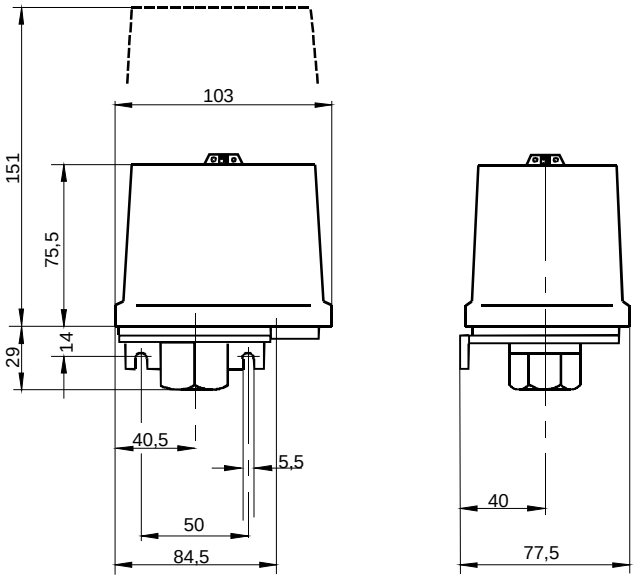


Above charts show the smallest adjustable differential.
Example per figure FF 4-4:
If upper setting is at 3.25 bar, lower setting can be adjusted between 0.07 and 3.0 bar (see arrows in the drawing).

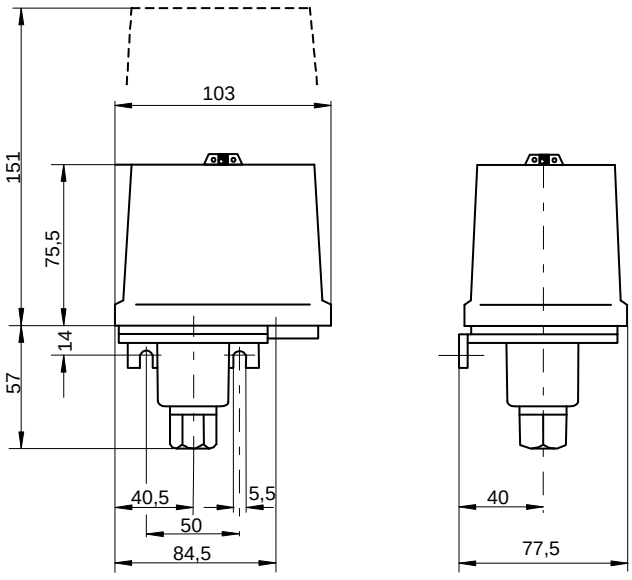
FF 4-250



Dimensions:

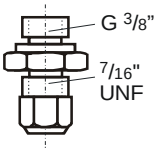


FF 4-2, FF 4-4, FF 4-8, FF 4-16, FF 4-32

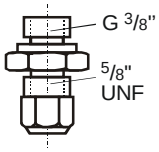


FF 4-60, FF 4-120, FF 4-250

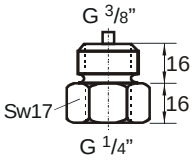
Accessories



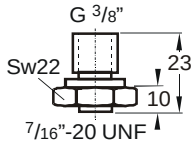
Brass gland for
6 x 1 copper tube
Type: R-7/16" UNF FN 262 Ms
Part Code Nr. 0526 842
Weight: ~0.18 kg



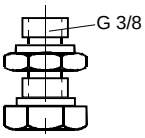
Brass gland for
10 x 1 copper tube
Type: R-5/8" UNF FN 262 Ms
Part Code Nr. 0526 830
Weight: ~0.18 kg



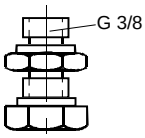
Nipple, Steel,
G3/8 - G¼ female
Type: H 124-141
Part Code Nr. 0136 857
Weight: ~0.085 kg



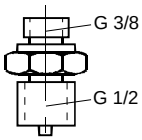
Nipple, Brass,
G3/8 -7/16"-20 UNF, female
Type: H124-202.1
Part Code Nr. 0137 051
Weight: ~0.05 kg



Steel Ermeto connector for
Ø 6 mm steel pipe
Type: R-AD 6-FN 43
Part Code Nr. 0405 466
Weight: ~0.1 kg



Steel Ermeto connector for
Ø 10 mm steel pipe
Type: R-AD 10-FN 43
Part Code Nr. 0405 478
Weight: ~0.1 kg

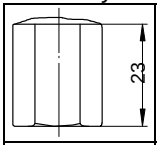
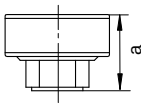
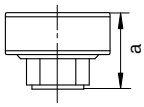
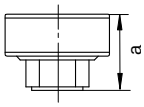
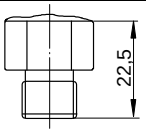
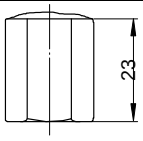
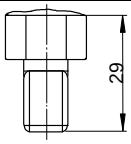


Steel manometer fitting
G3/8 - G½
Type: H 124-114
Part Code Nr. 0403 358
Weight: ~0.18 kg

Throttle screw for FF 4-2 ...-32
Type: H 138-043
Part Code Nr. : 0021 485
Weight: ~0.003 kg

Pressure Connectors

Contact your local ALCO CONTROLS wholesaler for availability of these pressure connectors with the pressostat of your choice.

	Code: **G** G ¼ female, brass / steel DIN ISO 228/I		Code: **H** G 3/8 female, silumin DIN ISO 228/I		Code: **I** G ½ female, silumin DIN ISO 228/I
			Code: **Y** G 3/8 female, polyamid DIN ISO 228/I		
	Code: **R** G ¼ A male, brass DIN ISO 228/I		Code: **F** ¼"-18 NPTF female ANSI B 1.20.3 - 1976		Code: **N** ¼"-18 NPTF male ANSI B 1.20.3 - 1976