



# W-Series

# DIFFERENTIAL

Short Form Data Sheet

BETA products are manufactured in The Netherlands

### Enclosures:

#### Cast Aluminum:

Oven baked powder coating  
hammertone grey

#### Also available in SS 316

Explosion-Proof IP 66 -  
EN IEC 60079

(Nema 4X)

#### Repeatability:

typical 0.2% of Full Scale

Standard unit: Barg

Optional: PSI / Kg / Pa

Standard process connection:  
1/4" NPT F or BSP F

#### Standard Diaphragm/O-ring:

D..L/ M: Buna N / Buna N  
D..H: TCP/ Buna N

#### For wetted parts:

more possibilities available,  
see full catalogue

## BETA SWITCHES ARE, BUILD TO LAST!

### Do you want to know more:

Please contact your local dealer  
and ask for the General Bulletin.  
Or contact us directly!



## RANGES for Differential switches

RANGE CODE	ADJUSTABLE RANGE DIFF. RANGE <sup>1)</sup>		TYPICAL DEADBAND <sup>1)</sup>		MAX. STATIC PRESSURE		MAX. OVERRANGE PRESSURE		PROOF PRESSURE	
	mBar / Bar		mBar / Bar		Bar		Bar		Bar	
D 302 L	12 - 75 <sup>2)</sup>	mBar	7	mBar	30	Bar	30 <sup>3)</sup>	Bar	35	Bar
D 304 L	22 - 180	mBar	8	mBar						
D 306 L	25 - 450	mBar	11	mBar						
D 309 L	35 - 1250	mBar	15	mBar	10	Bar	140 <sup>4)</sup>	Bar	140	Bar
D 402 M	0.3 - 1.0	Bar	0.15	Bar						
D 404 M	0.5 - 2.5	Bar	0.2	Bar						
D 406 M	1.0 - 6.0	Bar								
D 408 M	1.0 - 14.5	Bar	0.8	Bar	100	Bar	140	Bar	200	Bar
D 506 M	5 - 20	Bar								
D 508 M	10 - 50	Bar								
D 608 M	10 - 70	Bar	1.5	Bar	140	Bar	200 <sup>4)</sup>	Bar	200	Bar
D 352 H	80 - 160	mBar	25	mBar						
D 354 H	100 - 500	mBar	35	mBar						
D 356 H	120 - 1450	mBar	50	mBar						
D 359 H	150 - 3450	mBar	75	mBar	200	Bar	200 <sup>4)</sup>	Bar	200	Bar

#### NOTES:

- Ranges and deadbands are given at 50% of Max. Static pressure.  
All differential pressure sensors are sensitive to static pressure, both for setpoint and deadband.
- Range only with L1 micro switch.
- D...L can withstand a differential pressure P-low max. 1 bar above P-High.
- D...M, D...H can sustain full High and Low-side reversal.

#### IN THE FOLLOWING TABLE THE ESTIMATED INFLUENCE FOR INCREASING STATIC PRESSURE IS GIVEN.

SENSOR	SETPOINT	DEADBAND
D...L	- 0.7 mBar/Bar	= - 0.1 mBar/Bar
D...M	= + 3 mBar/Bar	+ 10 mBar/Bar
D...H	- 2 mBar/Bar	= - 0.4 mBar/Bar

Example: D...H-type Diff. setpoint: 1 bar (1000 mbar).

If static pressure increases 10 bar Diff.setpoint will be (10 x - 2 mbar ) = - 20 mbar less = 980 mbar.

**NOTE:** For differential application outside above ranges consult your BETA Switch Representative.

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More Short Form Data Sheets on Pressure, Vacuum and Temperature Switches are available.

[www.beta-b.nl](http://www.beta-b.nl)



**Making the modelcode: Follow steps 1 to 5**

**1 Selection of enclosure type.**

Conduit	Material	Enclosure code
3/4" NPT F	Aluminium	<b>W3</b>
M20x1.5	SS 316	<b>W8</b>
3/4" NPT F	SS 316	<b>W9</b>

**2 Selection of range code, see front page**

**3 Selection of process connection.**

Size	Material	Code
1/4" NPT F	SS316 *	<b>S1N</b>
1/4" BSP F	SS316 *	<b>S1B</b>
1/4" NPT F	Aluminium **	<b>A1N</b>
1/4" BSP F	Aluminium **	<b>A1B</b>
1/2" NPT M	SS316	<b>S7N</b>

\* Only for D..H, D..D and D..M available  
 \*\* D.. L: A1N or A1B For low side only.  
 High side: Only "L"-sensor connection  
 Proces connection according to NACE standard are available.  
 Consult your local BETA Switch Representative.

**4 Selection of wetted parts\***

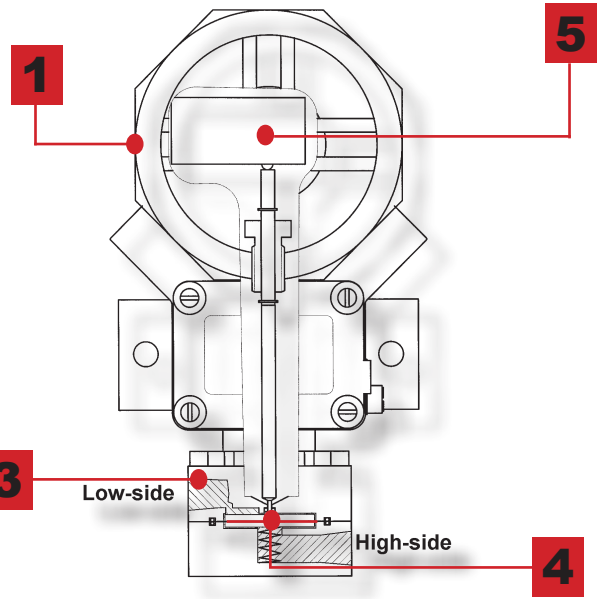
Diaphragm	O-ring	Code
Buna N	Buna N	<b>B1</b> **
Viton	Viton	<b>V2</b> **
SS316	Buna N	<b>S1</b>
SS316	Viton	<b>S2</b>
SS316	Teflon	<b>S4</b> **
SS316	EPDM	<b>S6</b>
SS316	Welded	<b>S0</b> **

\*\* Not possible for D..H. (P1 = Standard for D..H)

\* **WETTED PARTS ARE NOT GUARANTEED,** against corrosion or permeation since processes vary from plant to plant and concentration of harmful fluids, gasses or solids vary from time to time in a given process. Empirical experience by users should be the final guide and alternate materials based on this are generally available.  
 The diaphragm / O-Ring combinations are for process temperatures of -5°C to +90°C, unless otherwise indicated. For process temperatures beyond these limits please contact your BETA Switch Representative

**Accessoires:**

2" Pipe mount bracket set available.  
**Contents :**  
 2 x bolts M6 x 100 mm + washer + nut  
 Size +/- 1,5 mm / Material SS 304



**5 Selection of microswitches**

Rating		Use:	Switch Code:
VAC.	VDC. <sup>3)</sup>		
480/ 15A	28/ 0.5A	<b>Standard</b>	<b>K1</b> <sup>2)</sup>
480/ 10A	28/ 0.5A	Standaard for L-serie	<b>L1</b> <sup>2)</sup>
480/ 15A	125/ 0.5A	Normal DC-service	<b>U1</b> <sup>1) 2)</sup>
125/ 1A	28/ 0.5A	For use in H <sub>2</sub> S environment and/or <sup>3)</sup> for (EEx)i applications.	<b>G1</b> ** <sup>1)</sup>
250/ 0.1A	30/ 0.1A	Environmental proof(IP 67)	<b>Y1</b> <sup>1)</sup>
250/ 0.1A	30/ 0.1A		<b>O1</b> <sup>1)</sup>
250/ 2A	30/ 2A		<b>N1</b> <sup>1)</sup>

1) For D.P.D.T action, second code figure should be specified as "2"  
 For example: **Y1** = S.P.D.T./ **Y2** = D.P.D.T

2) VDE certified acc. to DIN EN 61 058-1:1992+A1:1993.

3) Indicated ratings are for resistive DC load only.

\*\* DC Rating not U.L. listed, although experience and third party testing confirm the D.C Voltage ratings. Consult your local BETA switch Representative.

**6 Selection of options**

Description	Option code
Cable gland	<b>C</b>
Vacuum Protection Plate	<b>M</b> *
Stainless steel tag key ringed to enclosure (Tag has 2 lines - 16 characters per line)	<b>S</b>

\* Not possible for D..H. (Standard for D..L)