



# 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

Wheaterproof IP 66 -  
EN 60529

(Nema 4X)

#### Repeatability:

typical 0.2% of Full Scale

Standard unit: Barg

Optional: PSI / Kg / Pa

Standard process conetion:  
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	200	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						

### NOTES:

<sup>1)</sup> 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.

<sup>2)</sup> Range only with L1 micro switch.

<sup>3)</sup> D...L can withstand a differential pressure P-low max. 1 bar above P-High.

<sup>4)</sup> 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.

**Disclaimer:** We reserve the right to make changes or modify the contents of this document without prior notice. BETA B.V. does not accept any liability or claim whatsoever for potential errors, incorrect interpretation or possible lack of information in this document. It is clearly and only intended as coarse and general information of our products.

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



**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>

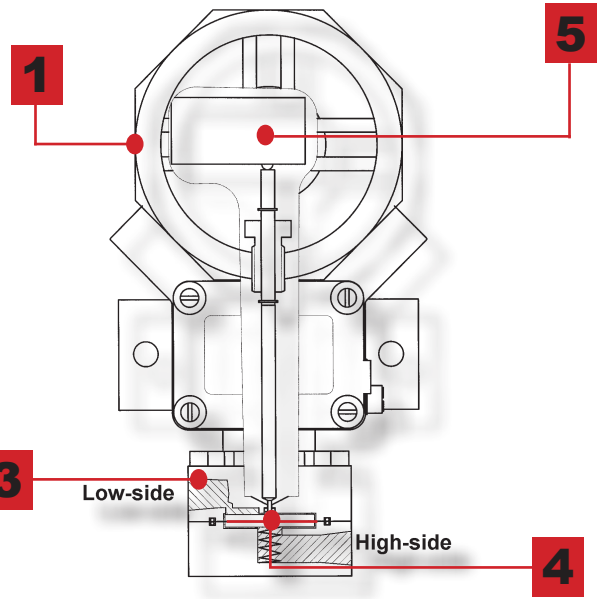
\* Only for D..H, D..D and D..M available  
 \*\* D.. L: A1N or A1B For low side only.  
 High side: Only "L"-sensor connection  
 Proces connection according to NACE standard are available.  
 Consult your local BETA Switch Representative.

**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



**5 Selection of microswitches**

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

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)

**Accessoires:**

2" Pipe mount bracket set available.

**Contents :**

2 x bolts M6 x 100 mm + washer + nut  
 Size +/- 1,5 mm / Material SS 304