



Agilent Technologies

4UHV Special for GSI

Rev.: 1.0
Data: 12-OCT-2015
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1 PROFIBUS

1.1 Configuration buffer

Offset (byte)	Unit Res.	Range	Size (byte)	Description
0	-	-	1	B _{7,6} → Pressure unit (0 = Torr, 1 = mbar, 2 = Pa) B ₅ → Auto Power ON (0 = no , 1 = yes)
1	Pressure unit selected	1 to 99 for mantissa -9 to -1 for exponent	2	Set Point A value
3	Pressure unit selected	1 to 99 for mantissa -9 to -1 for exponent	2	Set Point B value
5	Pressure unit selected	1 to 99 for mantissa -9 to -1 for exponent	2	Set Point C value
7	Pressure unit selected	1 to 99 for mantissa -9 to -1 for exponent	2	Set Point D value
9			1	B _{7,4} → Set point A mapping (default = 1) B _{3,0} → Set point B mapping (default = 2) See Note-2
10			1	B _{7,4} → Set point C mapping (default = 1) B _{3,0} → Set point D mapping (default = 2) See Note-2

Note 2: This byte is divided in two nibble (4 bits), each nibble is the number of HV channel to associated to the set point X

Example:

if you want assign the set point A to channel 2 you have to write byte offset 12 B_{7,4} = 0010

if you want assign the set point B to channel 3 you have to write byte offset 12 B_{5,0} = 0011

if you want assign the set point C to channel 4 you have to write byte offset 13 B_{7,4} = 0100

if you want assign the set point D to channel 1 you have to write byte offset 13 B_{5,0} = 0001



1.2 Output buffer

Offset (byte)	Unit Res.	Range	Size (byte)	Description
0	-	-	1	B ₇ → HV1 on/off (0=OFF, 1=ON) B ₆ → HV2 on/off (0=OFF, 1=ON) B ₅ → HV3 on/off (0=OFF, 1=ON) B ₄ → HV4 on/off (0=OFF, 1=ON) B ₃ → HV1 protect mode on/off (0=OFF, 1=ON) B ₂ → HV2 protect mode on/off (0=OFF, 1=ON) B ₁ → HV3 protect mode on/off (0=OFF, 1=ON) B ₀ → HV4 protect mode on/off (0=OFF, 1=ON)
1	-	-	1	B ₇ → HV1 mode (0= Fixed, 1 Step) B ₆ → HV2 mode (0= Fixed, 1 Step) B ₅ → HV3 mode (0= Fixed, 1 Step) B ₄ → HV4 mode (0= Fixed, 1 Step) B _{1:0} → Local/Serial (Profibus)/Remote It is not possible to switch between profibus mode and serial mode using the profibus communication you can switch between these two modes only in Local mode.
2	1bit=1mA	1-100mA	1	HV1 Protect current value
3	1bit=1mA	1-100mA	1	HV2 Protect current value
4	1bit=1mA	1-100mA	1	HV3 Protect current value
5	1bit=1mA	1-100mA	1	HV4 Protect current value
6	-	See table-1	1	B ₇₋₄ HV1-Power Max B ₃₋₀ HV2-Power Max
7	-	See table-1	1	B ₇₋₄ HV3-Power Max B ₃₋₀ HV4-Power Max
8	-	See Table-2	1	B ₇₋₄ HV1 Pump Types B ₃₋₀ HV2 Pump Types
11	-	See Table-2	1	B ₇₋₄ HV3 Pump Types B ₃₋₀ HV4 Pump Types



1.3 Input buffer

Offset (byte)	Unit Res.	Size (byte)	Description
0	-	1	B ₇ Communication status between CPU and internal profibus card B ₆ Configuration status (0 ok, 1 not good) B _{1,0} 1=remote, 2=local, 3=Profibus
1	-	1	B ₇ → HV1 on/off (0=OFF, 1=ON) B ₆ → HV2 on/off (0=OFF, 1=ON) B ₅ → HV3 on/off (0=OFF, 1=ON) B ₄ → HV4 on/off (0=OFF, 1=ON) B ₃ → HV1 protect mode on/off (0=OFF, 1=ON) B ₂ → HV2 protect mode on/off (0=OFF, 1=ON) B ₁ → HV3 protect mode on/off (0=OFF, 1=ON) B ₀ → HV4 protect mode on/off (0=OFF, 1=ON)
2	-	1	B ₇ → HV1 mode (0= Fixed, 1 Step) B ₆ → HV2 mode (0= Fixed, 1 Step) B ₅ → HV3 mode (0= Fixed, 1 Step) B ₄ → HV4 mode (0= Fixed, 1 Step) B ₃ → Set point A active (0= not active, 1= active) B ₂ → Set point B active (0= not active, 1= active) B ₁ → Set point C active (0= not active, 1= active) B ₀ → Set point D active (0= not active, 1= active)
3	-	1	B ₇ → HV1 cable interlock (0= ok present, 1= missing) B ₆ → HV2 cable interlock (0= ok present, 1= missing) B ₅ → HV3 cable interlock (0= ok present, 1= missing) B ₄ → HV4 cable interlock (0= ok present, 1= missing) B ₃ → HV1 Remote on/off (0=OFF, 1=ON) B ₂ → HV2 Remote on/off (0=OFF, 1=ON) B ₁ → HV3 Remote on/off (0=OFF, 1=ON) B ₀ → HV4 Remote on/off (0=OFF, 1=ON)
4	-	1	Error (0 = no, 1 = yes)
5	1bit=100V	1	HV1 V measured
6	1bit=100V	1	HV2 V measured
7	1bit=100V	1	HV3 V measured
8	1bit=100V	1	HV4 V measured
9	A	4 (floating point)	HV1 I measured
13	A	4 (floating point)	HV2 I measured
17	A	4 (floating point)	HV3 I measured
21	A	4 (floating point)	HV4 I measured
25	Pressure unit selected	4 (floating point)	HV1 Pressure measured



29	Pressure unit selected	4 (floating point)	HV2 Pressure measured
33	Pressure unit selected	4 (floating point)	HV3 Pressure measured
37	Pressure unit selected	4 (floating point)	HV4 Pressure measured
41	1bit=1mA	1	HV1 Protect current value
42	1bit=1mA	1	HV2 Protect current value
43	1bit=1mA	1	HV3 Protect current value
44	1bit=1mA	1	HV4 Protect current value
45	See table-1	1	B ₇₋₄ HV1-Power Max B ₃₋₀ HV2-Power Max
46	See table-1	1	B ₇₋₄ HV3-Power Max B ₃₋₀ HV4-Power Max
47	See table-2	1	B ₇₋₄ → HV1 Pump Types B ₃₋₀ → HV2 Pump Types
48	See table-2	1	B ₇₋₄ → HV3 Pump Types B ₃₋₀ → HV4 Pump Types



Table-1 – Max Power Selection

Nibble Value	Power (W)	Note
0	20	Valid only for 80W channels
1	30	Valid only for 80W channels
2	40	Valid only for 80W channels
3	50	Valid only for 80W channels
4	60	Valid only for 80W channels
5	70	Valid only for 80W channels
6	80	Valid only for 80W channels
7		
8		
9		
10		
11	120	Valid only for 200W channels
12	140	Valid only for 200W channels
13	160	Valid only for 200W channels
14	180	Valid only for 200W channels
15	200	Valid only for 200W channels

Table-2 - Pump types

0	-> Spare
1	-> 500 SC/Tr
2	-> 300 SC/Tr
3	-> 150 SC/Tr
4	-> 75-55-40SC/T
5	-> 20 SC/Tr
6	-> 500 Diode/ND
7	-> 300 Diode/ND
8	-> 150 Diode/ND
9	-> 75-55-40 D/ND
10	-> 20 Diode/ND
11	-> 10 Diode/ND
12	-> 75-55-45 SEM
13	-> 25-35 SEM
14	-> 10 SEM
15	-> not installed



Analog output

Analog output must be Current related as per following graph

