

Communication with pressure sensors

BAP device register map firmware version 3.1x

Revision A 2017

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Device register map

This section contains tables where you can find addresses of parameters in the device which you can read or write. Each device has its own device map and addresses can vary based on the device type. It is strongly prohibited to write to or read from any other addresses except addresses written here in this manual. This can cause device malfunction. Addresses ar e in hex format written as 2 bytes words. Float values are represented in IEEE-754 format and are stored as little endian representation. Integer values are stored as little endian as well.

Device: BAP

RAM space area map

Address (hex)	Description	Value type
0000	Filtered value of primary ADC	32 bit float
0002	Filtered value of secondary ADC	32 bit float
0004	Output DAC	16 bits integer
0005	Raw primary value without correction (pressure)	32 bit float
0007	Raw secondary value (temperature)	32 bit float
0009	Primary value (pressure)	32 bit float
000B	Secondary value (temperature)	32 bit float
000D	Output value	32 bit float
000F	Primary value without autozero correction	32 bit float
0011	Battery voltage	32 bit float

EEPROM space area map

Address	Description	Value type
0000	Protocol: 0 – Modbus RTU protocol 1 – SDI12 specific protocol	8 bit char
0000	Databits: 0 – 5 bits 1 – 6 bits 2 – 7 bits 3 – 8 bits	8 bit char
0001	Parity: 0 – None 1 – Even 2 – Odd	8 bit char
0001	Stopbits: 0 – 1 stopbit 1 – 2 stopbits	8 bit char

0002	Baudrate direct value	32 bit integer
0004	Device address	8 bit char
0004	SDI12 address	8 bit char
0005	Filtration for the ADC: Each time that ADC sample is taken, following formula is apply: ActualADC = ActualADC + (ADC – ActualADC) * Filtration	32 bit float
002E	**DO NOT CHANGE FIRST BYTE OF THIS REGISTER!** Second byte is first byte of correction minimum input float value (CorXmin1). To correctly write first byte of correction minimum input float value it is necessary to firstly read this register and change only second byte, then write this register back to the device.	16 bit
002F	Next two bytes of correction minimum input float value (CorXmin23)	16 bit
0030	Last byte of correction minimum input float value (CorXmin4) and first byte of correction maximum input float type value (CorXmax1)	16 bit
0031	Next two bytes of correction maximum input float value (CorXmax23)	16 bit
0032	Last byte of correction maximum input float value (CorXmax4) and first byte of correction minimum output float type value (CorYmin1)	16 bit
0033	Next two bytes of correction minimum output float value (CorYmin23)	16 bit
0034	Last byte of correction minimum output float value (CorYmin4) and first byte of correction maximum output float type value (CorYmax1)	16 bit
0035	Next two bytes of correction maximum output float value (CorYmax23)	16 bit
0036	Last byte of correction maximum output float value (CorYmax4) and first byte of correction offset float type value (Offset1). Please see note 1 below.	16 bit
0037	Next two bytes of correction offset float value (Offset23)	16 bit
0038	Last byte of correction offset float value (Offset4). Please see note 2 below. **DO NOT CHANGE SECOND BYTE OF THIS REGISTER!** To correctly write last byte of offset float value it is necessary to firstly read this register and change only first byte, then write this register back to the device.	16 bit

Note 1: Primary value (pressure) is counted with following formula: PrimaryValue = (RawPrimaryValue - CorXmin) * (CorYmax - CorYmin)) / (CorXmax - CorXmin)) + CorYmin)

Note 2: Correction offset value is added to the PrimaryValue after above correction is applied, final PrimaryValue is then counted by formula: PrimaryValue = PrimaryValue + Offset