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CLIMA

Instruction for Use

020769/05/05

Digital Baro Transmitter

3.1159.00.0xx

Contents

1 Models available

Denomination	Order-No.	Meas. range	Electrical Output
Digital Baro Transmitter	3.1159.00.040	913,3 … 1113,3 hPa	0 ... 20 mA
Digital Baro Transmitter	3.1159.00.041	913,3 … 1113,3 hPa	4 ... 20 mA

2 Application

The Digital Baro Transmitter serves for the measurement of the atmospheric air pressure. Via the electrical output the measuring value is available as constant current, and is displayed by an LED-indicating instrument.

3 Mode of Operation

The air pressure is measured by means of a CuBe aneroid capsule which is compressed as a function of air pressure. This movement is detected by an inductive displacement pickup. The electrical signal is converted into a normalized current signal in a connected measuring transducer and displayed as a digital value.

4 Recommendation for Side Selection / Standard Installation

As air pressure is dependent on the site elevation, in meteorology all pressure readings are relative to height above sea level (NN (NSL) = mean sea level). This is called **reduction.** The user himself can reduce the displayed value, provided that the site elevation above NN(NSL) is known. (Location level is often indicated in blue prints of buildings). If the baro-transmitter is used at the coast (i.e. approximately at sea level), the value does not have to be reduced. At higher site elevations the air pressure is reduced in accordance with the barometric height formula (see table).

The device is designed for inside installation. If used outside, an additional external housing including the appropriate type of protection is necessary; in this connection, please pay particular attention to the temperature effect (see Technical Data).

5 Installation

Attention

The electrical connection must be carried out only by a qualified expert.

Please pay attention to the allowable operating voltage!

Please pay attention to the allowable measuring range!

Please pay attention to the allowable temperature for storing, transport and operation!

Please protect the instrument against solar radiation!

The instrument is not suited to use with aggressive gases.

Comment

Before installation, the settings of the instrument are possibly to be changed (ref. chapter 6).

5.1 Mechanical Mounting:

The Digital Baro Transmitter is designed for installation in a control panel. The necessary control panel opening must be 92 x 92 mm in size. The scope of supply includes two fixing brackets. Mounting position: horizontal.

5.2 Electrical Mounting:

At the rear panel of the housing there are terminal clamps for the supply voltage, and the analogue output.

3 supply options are realized with this instrument. The instrument can be supplied with 230 V AC, 115 V AC or with 12 –28 V DC, by connecting the respective supply voltage to the corresponding clamp (terminal pin assignment ref. chapter 7).

Remark:

Please do not connect anything to the terminal clamps not used.

In case of supply 12 –28 V DC please take into account that analogue output and supply are not galvanically isolated.

6 Setting

Please note:

The instrument is set to NN at the factory.

Reduction goes off as follows:

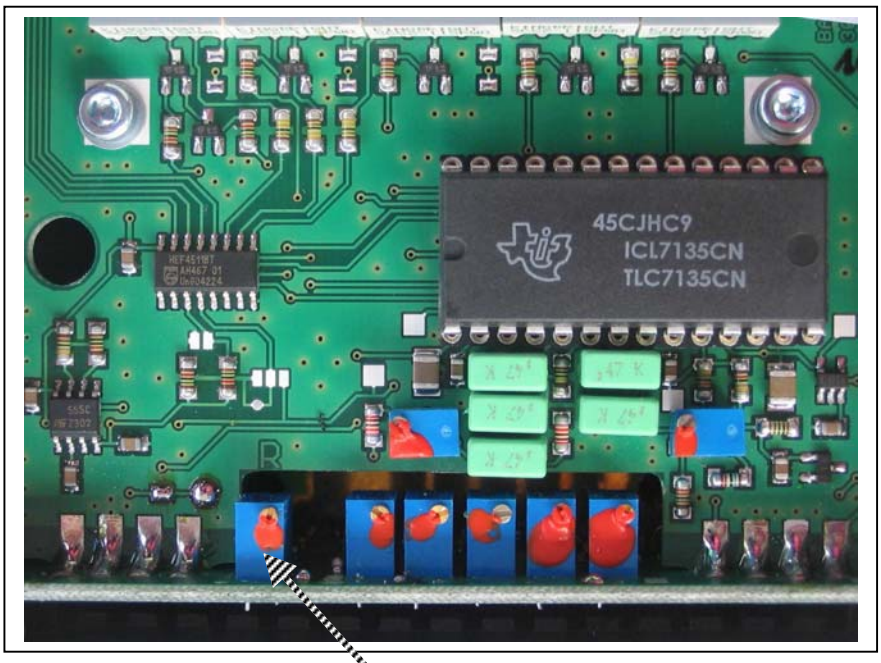
- Remove the front panel
- First run the instrument for five hours
- Then read the differential value (correction value) which corresponds to the height of the site in the table and add this value to the displayed value.
- The calculated value (see example) is to be set at the display through reducing potentiometer by clockwise rotation

Example:

Site:	Göttingen, 150 m above NN (NSL)
Difference value:	17,9 mbar
Displayed value:	993,9 mbar
Calculated value:	993,9 mbar + 17,9 mbar = ***1011,8 mbar***

The value can be reduced up to an elevation of ca. 850 m above NN.

The baro-transmitter is now reduced, and displays the air pressure calculated to sea level.

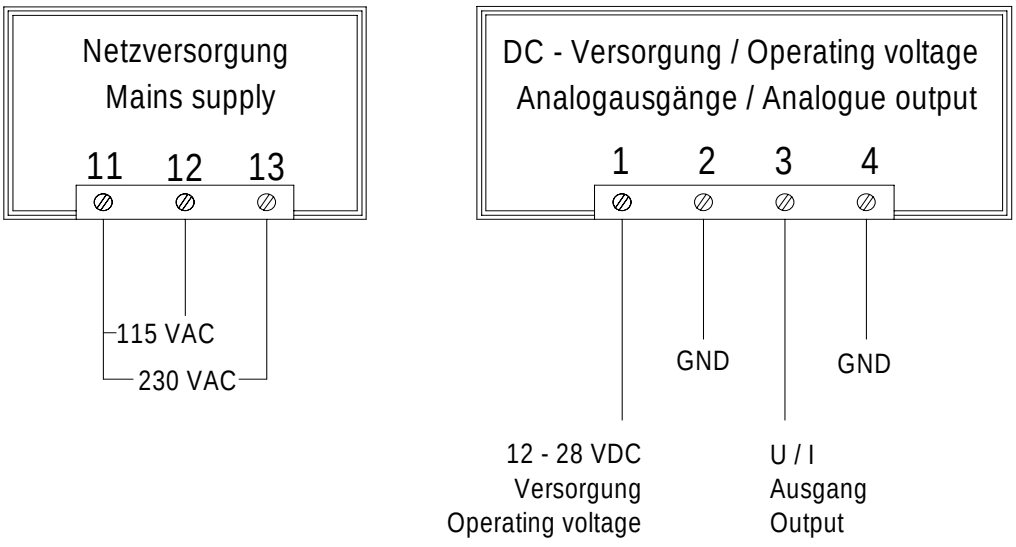


Reducing potentiometer

Table: Air pressure as a function of height and difference to 1013,3 mbar (calculated according to DIN ISO 2533).

Höhe m	Diff. hPa	Höhe m	Diff. hPa	Höhe m	Diff. hPa	Höhe m	Diff. hPa	Höhe m	Diff. hPa	Höhe m	Diff. hPa	Höhe m	Diff. hPa
0	**0,0**	**230**	**27,3**	**460**	**54,1**	**690**	**80,2**	920	105,7	1150	130,7	1380	155,2
10	**1,2**	**240**	**28,5**	**470**	**55,2**	**700**	**81,3**	930	106,8	1160	131,8	1390	156,2
20	**2,4**	**250**	**29,7**	**480**	**56,4**	**710**	**82,4**	940	107,9	1170	132,9	1400	157,3
30	**3,6**	**260**	**30,8**	**490**	**57,5**	**720**	**83,6**	950	109,0	1180	134,0	1410	158,3
40	**4,8**	**270**	**32,0**	**500**	**58,6**	**730**	**84,7**	960	110,1	1190	135,0	1420	159,4
50	**6,0**	**280**	**33,2**	**510**	**59,8**	**740**	**85,8**	970	111,2	1200	136,1	1430	160,4
60	**7,2**	**290**	**34,4**	**520**	**60,9**	**750**	**86,9**	980	112,3	1210	137,2	1440	161,4
70	**8,4**	**300**	**35,5**	**530**	**62,1**	**760**	**88,0**	990	113,4	1220	138,2	1450	162,5
80	**9,6**	**310**	**36,7**	**540**	**63,2**	**770**	**89,1**	1000	114,5	1230	139,3	1460	163,5
90	**10,8**	**320**	**37,9**	**550**	**64,4**	**780**	**90,3**	1010	115,6	1240	140,4	1470	164,6
100	**12,0**	**330**	**39,0**	**560**	**65,5**	**790**	**91,4**	1020	116,7	1250	141,4	1480	165,6
110	**13,1**	**340**	**40,2**	**570**	**66,6**	**800**	**92,5**	1030	117,8	1260	142,5	1490	166,7
120	**14,3**	**350**	**41,3**	**580**	**67,8**	**810**	**93,6**	1040	118,9	1270	143,6	1500	167,7
130	**15,5**	**360**	**42,5**	**590**	**68,9**	**820**	**94,7**	1050	119,9	1280	144,6		
140	**16,7**	**370**	**43,7**	**600**	**70,0**	**830**	**95,8**	1060	121,0	1290	145,7		
150	**17,9**	**380**	**44,8**	**610**	**71,2**	**840**	**96,9**	1070	122,1	1300	146,7		
160	**19,1**	**390**	**46,0**	**620**	**72,3**	**850**	**98,0**	1080	123,2	1310	147,8		
170	**20,3**	**400**	**47,1**	**630**	**73,4**	860	99,1	1090	124,3	1320	148,8		
180	**21,4**	**410**	**48,3**	**640**	**74,6**	870	100,2	1100	125,4	1330	149,9		
190	**22,6**	**420**	**49,4**	**650**	**75,7**	880	101,3	1110	126,4	1340	151,0		
200	**23,8**	**430**	**50,6**	**660**	**76,8**	890	102,4	1120	127,5	1350	152,0		
210	**25,0**	**440**	**51,8**	**670**	**77,9**	900	103,5	1130	128,6	1360	153,1		
220	**26,2**	**450**	**52,9**	**680**	**79,1**	910	104,6	1140	129,7	1370	154,1		

7 Connecting Diagram



8 Technical Data

Description	
Measuring range	913,3 ... 1113,3 hPa (1 hPa = 1 mbar)
Resolution	0,1 hPa
Measuring accuracy	± 0,5 hPa, relative auf NN
Temperature effect	+/- 0,2 hPa / °C within temperature range 20 ... 50°C
Angular deviation	+/- 0,1 hPa at 10° tilt
Longterm drift	0,3 hPa / year
Side elevation reduction	0 ... 850 m over NN by means of a potentiometer
LED-Display	rot, 4 ½ digit, 14 mm height
Electrical Output	0 ... 20 mA with order-no. 3.1159.00.040 4 ... 20 mA with order-no. 3.1159.00.041 $R_L \leq 250\ \Omega$
Operating voltage	230 V AC +6/-15% or 115 V AC +6/-15% or 12 ...28 V DC
Current consumption	ca. 3 VA
Operating temperature	0 ... +50°C
Storing temperature	-10 ... +70°C
Model	Control panel mounting case, acc. toDIN 43700
Dimensions	96mm x 96mm x 127mm
Weight	0,6 kg
Protection	IP20
EMC- immunity	Corresponds to EN 61000-6-3 and EN 61000-6-1
CE-sign	

Thies CLIMA

TÜV CERT DIN EN ISO 9001 : 2000 08 100 971688

TÜV CERT DIN EN ISO 14001 : 2005 08 104 971688

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