Naložba v vašo prihodnost

OPERACIJO DELNO FINANCIRA EVROPSKA UNIJA

Kohezijski sklad

Vaisala OYJ

Windcap Ultrasonic Wind Sensor WMT702

Serijska številka: K2120002

Lokacija: Tolmin - Volce

Dokument	Kontrola
Specifikacija opreme	
Poročilo o testiranju (Protokol Test oprema I.)	
Garancijske izjave za merilno opremo	
Uporabniška dokumentacija za merilno opremo	
Dokumentacija o konfiguracijskih nastavitvah opreme	
Kalibracijski certifikati (FAT, …)	

1.0 Kazalo

Kazalo

2.0 Specifikacija opreme

2.1 Proizvajalec, tip in serijska številka
Proizvajalec: Vaisala OYJ, Finska Tip: WMT702, Serijska številka: K2120002

2.2 Oznaka programskega jedra (Firmware)
Programsko jedro (Firmware): V 2.02

2.3 Poročilo o konfiguraciji senzorja v skladu s programsko opremo naročnika in master dokumentacije [cf]

WMT

---

default setings

Citanje nastavitev senzorja

---------- g ----------

>s address ,A

s autoInt ,1.00000

s autoPort ,1

s autoSend ,0

s startDelay ,5

s com1_baud ,4

s com1_data ,8

s com1_parity ,0

s com1_stop ,1

s com1_delay ,20

s com1_protocol,0

s com2_baud ,4

s com2_data ,8

s com2_parity ,0

s com2_stop ,1

s com2_delay ,20

s com2_protocol,0

s com2_interf ,0

s comOffTime ,0.00000

s msg1 ,1

s msg2 ,2

s msg3 ,3

s msg4 ,4

s heaterOn ,1.00000

s messages ,1

s sleepTime ,5

s wndAvg ,1.00000

s wndCoast ,0.00000

s wndCover ,4

s wndDirOffset,0.00000

s wndGustTime ,3.00000

s wndOrientation,0

s wndUnit ,0

s wndVector ,0

s aout1_g ,1.00000

s aout1_o ,0.00000

s aout1err ,1000.00

s aout1maxv ,32000.0

s aout1minv ,0.00000

s aout1mode ,3

s freqType ,0

s aout2_g ,1.00000

s aout2_o ,0.00000

s aout2err ,1000.00

s aout2maxv ,32000.0

s aout2minv ,0.00000

s aout2mode ,7

s lowPower ,0

s cal_date ,20140605

s serial_n ,K2120002

s serial_pcb ,0000

Citanje nastavitev senzorja

---------- baud ----------

>9600,8,N,1

Citanje nastavitev senzorja

---------- version --------

>204

Citanje nastavitev senzorja

---------- poll 1 --------

>1

Citanje nastavitev senzorja

---------- poll 2 --------

>2

ARSO Setings

Citanje nastavitev senzorja

---------- g ----------

>s address ,1

s autoInt ,1.00000

s autoPort ,1

s autoSend ,0

s startDelay ,5

s com1_baud ,4

s com1_data ,8

s com1_parity ,0

s com1_stop ,1

s com1_delay ,20

s com1_protocol,0

s com2_baud ,5

s com2_data ,8

s com2_parity ,0

s com2_stop ,1

s com2_delay ,20

s com2_protocol,0

s com2_interf ,0

s comOffTime ,0.00000

s msg1 ,\ss\ad:1:\wd,\ws,\wx,\wy,\wm,\wp,\gu,\lu,\dx,\dm,\w1,\rg,\er,\va,\se\sp\cr\lf

s msg2 ,\ss\ad:2:\Ts,\ra,\ta,\ti,\vh,\vi,\se\sp\cr\lf

s msg3 ,3

s msg4 ,4

s heaterOn ,1.00000

s messages ,1

s sleepTime ,5

s wndAvg ,3.00000

s wndCoast ,0.00000

s wndCover ,4

s wndDirOffset,0.00000

s wndGustTime ,3.00000

s wndOrientation,0

s wndUnit ,0

s wndVector ,0

s aout1_g ,1.00000

s aout1_o ,0.00000

s aout1err ,1000.00

s aout1maxv ,32000.0

s aout1minv ,0.00000

s aout1mode ,3

s freqType ,0

s aout2_g ,1.00000

s aout2_o ,0.00000

s aout2err ,1000.00

s aout2maxv ,32000.0

s aout2minv ,0.00000

s aout2mode ,7

s lowPower ,0

s cal_date ,20140605

s serial_n ,K2120002

s serial_pcb ,0000

Citanje nastavitev senzorja

---------- baud ----------

>19200,8,N,1

Citanje nastavitev senzorja

---------- version --------

>204

Citanje nastavitev senzorja

---------- poll 1 --------

>1:1:291.01,00.10,-00.04,00.10,00.08,00.13,00.10,00.06,300.53,280.75,283.82,01.00,40,1,15

Citanje nastavitev senzorja

---------- poll 2 --------

>1:2:25.08,02.7,20.0,28.3,00.3,23.5,35

Zahteve: Aktualni namizni računalnik (PC) ali prenosni računalnik z operacijskim sistemom Windows XP ali novejši.

3.0 Poročilo o testiranju (Protokol Ttest oprema I.)

3.1 Test zajema podatkov pri vzorčenju, test procesiranja podatkov in izhodnih izpisov aplikacij sensord (get ta [chxx], get pa [chxx]) in poročilo z rezultati testa

```
wmt702d(60001)>get ta
06/02/2014     11:33:43.0     cpu_0:60001:wmt702d
P3180   ch00@cpu_0:60001      016@0100.12.00.02.003   ffff    -99.99  n      0x00a0  wind_processed
I3001   ch01@cpu_0:60001      016@0100.12.01.02.003   8000    345     deg    0x00a0  wind_direction_3s_avg
I3002   ch02@cpu_0:60001      016@0100.12.02.02.003   8000    0.06    m/s    0x00a0  wind_speed_3s_avg
I3003   ch03@cpu_0:60001      016@0100.12.03.02.003   8000    -0.03   m/s    0x00a0  wind_speed_avg_x
I3004   ch04@cpu_0:60001      016@0100.12.04.02.003   8000    0.03    m/s    0x00a0  wind_speed_avg_y
I3005   ch05@cpu_0:60001      016@0100.12.05.02.003   8000    0.02    m/s    0x00a0  wind_speed_min
I3006   ch06@cpu_0:60001      016@0100.12.06.02.003   8000    0.16    m/s    0x00a0  wind_speed_peak
I3007   ch07@cpu_0:60001      016@0100.12.07.02.003   8000    0.07    m/s    0x00a0  wind_speed_gust
I3008   ch08@cpu_0:60001      016@0100.12.08.02.003   8000    0.05    m/s    0x00a0  wind_speed_lull
I3009   ch09@cpu_0:60001      016@0100.12.09.02.003   8000    353     deg    0x00a0  wind_direction_max
I3010   ch10@cpu_0:60001      016@0100.12.10.02.003   8000    049     deg    0x00a0  wind_direction_min
I3011   ch11@cpu_0:60001      016@0100.12.11.02.003   8000    281     deg    0x00a0
wind_direction_at_wind_peak
I3012   ch12@cpu_0:60001      016@0100.12.12.02.003   8000    1       n      0x00a0  signal_quality_rg
I3013   ch13@cpu_0:60001      016@0100.12.13.02.003   8000    25.2    st.C   0x00a0  sonic_T_Ts
I3014   ch14@cpu_0:60001      016@0100.12.14.02.003   8000    3       n      0x00a0  heather_resistance_ra
I3015   ch15@cpu_0:60001      016@0100.12.15.02.003   8000    20.0    st.C   0x00a0  transducer_T_ta
I3016   ch16@cpu_0:60001      016@0100.12.16.02.003   8000    29.4    st.C   0x00a0  internal_T_ti
I3017   ch17@cpu_0:60001      016@0100.12.17.02.003   80a1    0.3     VDC    0x00a0  heather_voltage_vh
I3018   ch18@cpu_0:60001      016@0100.12.18.02.003   8000    23.6    VDC    0x00a0  supply_voltage_vi
S3180   ch19@cpu_0:60001      016@0100.12.19.02.003   8000    00a0    n      status_wmt702

wmt702d(60001)>get pa
P0@cpu_0:60001  11:35   06/02/2014     11:31   06/02/2014     11:21   06/02/2014     11:30   06/02/2014
16:24   27/09/2013     3000    M998    016
P3180   ch00@cpu_0:60001      016@0100.12.00.02.003   35     8800    0.05    229     0.40    303     11:24   0.03
184     11:21   0.00    0.00    0.000.83     11:24   0.00    11:21   0.08    231     001     0x00a0
```

Poročilo z rezultati testa

Test zajema podatkov je bil v celoti uspešen.

3.2 Test ustreznosti izhodnega formata senzorja glede na pričakovani format programskega vmesnika sensord in poročilo z rezultati testa

>S msg1,\ss\ad:1:\wd,\ws,\wx,\wy,\wm,\wp,\gu,\lu,\dx,\dm,\w1,\rg,\er,\va,\se\sp\cr\lf
msg1=\ss\ad:1:\wd,\ws,\wx,\wy,\wm,\wp,\gu,\lu,\dx,\dm,\w1,\rg,\er,\va,\se\sp\cr\lf!

>S wndAvg,3
wndAvg=3.00000!

>poll 1
>1:1:163.77,00.07,00.06,-00.02,00.05,00.08,00.07,00.06,180.52,150.16,167.03,01.00,40,1,1C

Quantity	Abbreviation	Value
Adresse	ad1	-
Wind direction, average	wd	1
Wind speed, average	ws	1
Wind speed, average, x component	wx	163.77
Wind speed, average, y component	wy	00.07
Wind speed minimum calculated over the averaging period	wm	-00.05
Wind speed maximum calculated over the averaging period	wp	00.05
Wind gust speed	gu	00.03
Wind lull speed	lu	00.11
Wind direction maximum calculated over the averaging period	dx	00.08
Wind direction minimum calculated over the averaging period	dm	00.07
Wind direction when the peak speed occured	w1	335.66
Signal quality	rg	295.58
Status code. The code is a decimal number, Each bit corresponds to a status flag	er	295.58
Validity of the measurement data. The available values are: 1=Valid wind measurement data 0=Unable to measure	va	01.00
Cheksum calculation end point	se	296
Print checksum	sp	1
CR (carriage return)	cr	24

>S msg2,\ss\ad:2:\Ts,\ra,\ta,\ti,\vh,\vi,\se\sp\cr\lf
msg2=\ss\ad:2:\Ts,\ra,\ta,\ti,\vh,\vi,\se\sp\cr\lf!

>poll 2
>1:2:22.81,05.4,20.0,27.9,00.6,23.7,35

Quantity	Abbreviation	Value
Adresse	ad2	-
Sonic temperature	Ts	1
Heater resistance	ra	2
Transducer temperature	ta	24.66
Internal temperature	ti	02.7
Heater voltage	vh	20.0
Supply voltage	vi	27.9
Cheksum calculation end point	se	00.3
Print checksum	sp	11.3
CR (carriage return)	cr	3.3E

Poročilo z rezultati testa.

Pričakovani in dejanski format se popolnoma ujemata. Test je uspešno opravljen.

3.3 Test in detajlni opis/poročilo specifikacije izhodnega formata senzorja in senzorskega programskega vmesnika.

Test specifikacije izhodnega formata

Test je bil izveden z ukazi get ta in get pa.

wmt702d(60001)>get ta –rf

02/07/2015 17:43:47.0 cpu_0:60001:wmt702d
P3180 ch00@cpu_0:60001 016@0100.12.00.02.003 0x0000 -99.99 -99.99 n 0x0001 wind_processed
I3001 ch01@cpu_0:60001 016@0100.12.01.02.003 0x0000 262 262.119995 deg 0x0001 wind_direction_3s_avg
I3002 ch02@cpu_0:60001 016@0100.12.02.02.003 0x0000 2.47 2.470000 m/s 0x0001 wind_speed_3s_avg
I3003 ch03@cpu_0:60001 016@0100.12.03.02.003 0x0000 0.34 0.340000 m/s 0x0001 wind_speed_avg_x
I3004 ch04@cpu_0:60001 016@0100.12.04.02.003 0x0000 2.44 2.440000 m/s 0x0001 wind_speed_avg_y
I3005 ch05@cpu_0:60001 016@0100.12.05.02.003 0x0000 2.25 2.250000 m/s 0x0001 wind_speed_min
I3006 ch06@cpu_0:60001 016@0100.12.06.02.003 0x0000 2.63 2.630000 m/s 0x0001 wind_speed_peak
I3007 ch07@cpu_0:60001 016@0100.12.07.02.003 0x0000 2.48 2.480000 m/s 0x0001 wind_speed_gust
I3008 ch08@cpu_0:60001 016@0100.12.08.02.003 0x0000 2.13 2.130000 m/s 0x0001 wind_speed_lull
I3009 ch09@cpu_0:60001 016@0100.12.09.02.003 0x0000 272 272.269989 deg 0x0001 wind_direction_max
I3010 ch10@cpu_0:60001 016@0100.12.10.02.003 0x0000 256 255.899994 deg 0x0001 wind_direction_min
I3011 ch11@cpu_0:60001 016@0100.12.11.02.003 0x0000 266 265.570007 deg 0x0001 wind_direction_at_wind_peak
I3012 ch12@cpu_0:60001 016@0100.12.12.02.003 0x0000 1 1.000000 n 0x0001 signal_quality_rg
I3013 ch13@cpu_0:60001 016@0100.12.13.02.003 0x0000 27.8 27.820000 st.C 0x0001 sonic_T_Ts
I3014 ch14@cpu_0:60001 016@0100.12.14.02.003 0x0000 60 60.500000 n 0x0001 heather_resistance_ra
I3015 ch15@cpu_0:60001 016@0100.12.15.02.003 0x0000 28.8 28.799999 st.C 0x0001 transducer_T_ta

```
I3016  ch16@cpu_0:60001     016@0100.12.16.02.003  0x0000  36.6   36.599998     st.C   0x0001
internal_T_ti
I3017  ch17@cpu_0:60001     016@0100.12.17.02.003  0x0000  22.8   22.799999     VDC    0x0001
heather_voltage_vh
I3018  ch18@cpu_0:60001     016@0100.12.18.02.003  0x0000  23.1   23.100000     VDC    0x0001
supply_voltage_vi
S3180  ch19@cpu_0:60001     016@0100.12.19.02.003  0x0000  0x0001  0x00000000    bit    status_wmt702

wmt702d(60001)>get pa

P0@cpu_0:60001  17:44  02/07/2015    12:21  16/06/2015    17:31  02/07/2015    17:40  02/07/2015
09:26  11/06/2015    00828  M473   016
P3180  ch00@cpu_0:60001     016@0100.12.00.02.003  100    0x0000  2.79   261    5.67   256    17:32  0.76
249    17:40  0.08   0.02   0.11   6.35   17:32  0.23   17:40  2.91   263    0.96   0x0001
wmt702d(60001)>sensor value
ch00@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  -99.99  -99.99  n     0x0001  wind_processed
ch01@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  259    259    deg    0x0001  wind_direction_3s_avg
ch02@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  2.46   2.46   m/s    0x0001  wind_speed_3s_avg
ch03@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  0.46   0.46   m/s    0x0001  wind_speed_avg_x
ch04@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  2.42   2.42   m/s    0x0001  wind_speed_avg_y
ch05@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  2.18   2.18   m/s    0x0001  wind_speed_min
ch06@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  2.77   2.77   m/s    0x0001  wind_speed_peak
ch07@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  2.52   2.52   m/s    0x0001  wind_speed_gust
ch08@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  2.30   2.30   m/s    0x0001  wind_speed_lull
ch09@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  266    266    deg    0x0001  wind_direction_max
ch10@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  253    253    deg    0x0001  wind_direction_min
ch11@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  255    255    deg    0x0001
wind_direction_at_wind_peak
ch12@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  1      1      n      0x0001  signal_quality_rg
ch13@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  27.6   27.6   st.C   0x0001  sonic_T_Ts
ch14@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  60     60     n      0x0001  heather_resistance_ra
ch15@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  28.8   28.8   st.C   0x0001  transducer_T_ta
ch16@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  36.6   36.6   st.C   0x0001  internal_T_ti
ch17@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  22.8   22.8   VDC    0x0001  heather_voltage_vh
ch18@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  23.1   23.1   VDC    0x0001  supply_voltage_vi
ch19@cpu_0:60001     02/07/2015    17:44:00.0    0x0000  0x0000  0x0001  bit    status_wmt702
ch00@cpu_0:60001     02/07/2015    17:44:02.0    0x0000  -99.99  -99.99  n     0x0001  wind_processed
ch01@cpu_0:60001     02/07/2015    17:44:02.0    0x0000  259    259    deg    0x0001  wind_direction_3s_avg
ch02@cpu_0:60001     02/07/2015    17:44:02.0    0x0000  2.30   2.30   m/s    0x0001  wind_speed_3s_avg
```

```
ch03@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 0.42   0.42   m/s    0x0001 wind_speed_avg_x
```

Naložba v vašo prihodnost

OPERACIJO DELNO FINANCIRA EVROPSKA UNIJA

Kohezijski sklad

```
ch04@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 2.26   2.26   m/s    0x0001 wind_speed_avg_y
ch05@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 1.93   1.93   m/s    0x0001 wind_speed_min
ch06@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 2.68   2.68   m/s    0x0001 wind_speed_peak
ch07@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 2.48   2.48   m/s    0x0001 wind_speed_gust
ch08@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 2.30   2.30   m/s    0x0001 wind_speed_lull
ch09@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 263    263    deg    0x0001 wind_direction_max
ch10@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 255    255    deg    0x0001 wind_direction_min
ch11@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 257    257    deg    0x0001
wind_direction_at_wind_peak
ch12@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 1      1      n      0x0001 signal_quality_rg
ch13@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 27.7   27.7   st.C   0x0001 sonic_T_Ts
ch14@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 60     60     n      0x0001 heather_resistance_ra
ch15@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 28.8   28.8   st.C   0x0001 transducer_T_ta
ch16@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 36.6   36.6   st.C   0x0001 internal_T_ti
ch17@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 22.8   22.8   VDC    0x0001 heather_voltage_vh
ch18@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 23.1   23.1   VDC    0x0001 supply_voltage_vi
ch19@cpu_0:60001    02/07/2015    17:44:02.0    0x0000 0x0000 0x0001 bit    status_wmt702
ch00@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 -99.99 -99.99 n      0x0001 wind_processed
ch01@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 259    259    deg    0x0001 wind_direction_3s_avg
ch02@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 1.85   1.85   m/s    0x0001 wind_speed_3s_avg
ch03@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 0.34   0.34   m/s    0x0001 wind_speed_avg_x
ch04@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 1.81   1.81   m/s    0x0001 wind_speed_avg_y
ch05@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 1.56   1.56   m/s    0x0001 wind_speed_min
ch06@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 2.07   2.07   m/s    0x0001 wind_speed_peak
ch07@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 2.40   2.40   m/s    0x0001 wind_speed_gust
ch08@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 1.85   1.85   m/s    0x0001 wind_speed_lull
ch09@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 267    267    deg    0x0001 wind_direction_max
ch10@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 247    247    deg    0x0001 wind_direction_min
ch11@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 259    259    deg    0x0001
wind_direction_at_wind_peak
ch12@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 1      1      n      0x0001 signal_quality_rg
ch13@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 27.5   27.5   st.C   0x0001 sonic_T_Ts
ch14@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 60     60     n      0x0001 heather_resistance_ra
ch15@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 28.8   28.8   st.C   0x0001 transducer_T_ta
ch16@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 36.6   36.6   st.C   0x0001 internal_T_ti
ch17@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 22.8   22.8   VDC    0x0001 heather_voltage_vh
ch18@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 23.1   23.1   VDC    0x0001 supply_voltage_vi
ch19@cpu_0:60001    02/07/2015    17:44:04.0    0x0000 0x0000 0x0001 bit    status_wmt702

Command canceled with <ESC>
wmt702d(60001)>
```

6.0 Garancijska izjava

Garancijska izjava je v prilogi.

1. **Uporabniška dokumentacija**
2. **Dokumentacija o konfiguracijskih nastavitvah opreme (poročilo o nastavitvah, objavljeno v [cf] dokumentaciji za lokacijo**

V skladu s politiko varovanja okolja sta bila predana dva natisnjena izvoda uporabniške dokumentacije za merilnik. Dokumentacija je sicer na voljo v digitalni obliki na projektnem strežniku

7.0 Kalibracijski certifikati

Originalni kalibracijski certifikati so v prilogi.

8.0 Foto dokumentacija montaže in priključitve senzorja na merilni sistem

Fotografije so v prilogi.

VAISALA

Warranty Certificate

This document will serve as the **Warranty Certificate** for the instrument delivery for BOBER network, supplied by Vaisala Oyj., to *Republic of Slovenia, Ministry of Agriculture and the Environment, Slovenian Environment Agency, ARSO*. This document signifies the end of the installation phase and the transition to the warranty phase. This is not intended to be a checklist of all items delivered. The certificate meets the contractual requirements for both *ARSO* and Vaisala Oyj. for system acceptance.

The following acceptance includes the listed items:

❒ PTB330, Vaisala	❒ USB-RJ45-Cable, Vaisala	❒ HMP155, Vaisala
❒ USB-Cable M12, Vaisala	❒ USB-RJ45-Cable, Vaisala	❒ MI70 (B14 Type), Vaisala
❒ MI70 Euro Adap., Vaisala	❒ MI70 (B10 Type), Vaisala	❒ MI70-HMP Cable, Vaisala
❒ MI70 USB Cable, Vaisala	❒ MI70 Case, Vaisala	❒ QMT103, Vaisala
❒ WMT700 Heat., Vaisala	❒ WMT700 Std., Vaisala	❒ WMT700 Verifier, Vaisala
❒ WMT700 Cable, Vaisala	❒ WMT700 Bird Kit, Vaisala	❒ CL31, Vaisala
❒ CL31 USB Cable, Vaisala	❒ Stevenson Screen, MetSpec	❒ Mounting Rails, MetSpec
❒ LTS2000, Eigenbrodt	❒ LTS2010 Basket, Eigenbrodt	❒ SHE850, Eigenbrodt
❒ SPN1, Delta-T	❒ Leveling Plate, Delta-T	❒ SunRead s/w, Delta-T
❒ SMP11, Kipp&Zonen	❒ CVF3, Kipp&Zonen	❒ UVS-B-T, Kipp&Zonen
❒ Uviator s/w, Kipp&Zonen		

S/N: K2120002

ARSO accepts the components as delivered by Vaisala Oyj. as indicated by the signatures below.

The 3 years warranty period commences with the execution of this certificate.

ARSO Representative	Date
	18.11.2014
Vaisala Representative	Date

Comments:

VAISALA OYJ VAISALA FINLAND

TEST REPORT

Instrument	ULTRASONIC WIND SENSOR WMT702
Order code	WMT702B2A0A009B1A2
Serial number	K2120002
Manufacturer	Vaisala Oyj, Finland
Calibration date	5th June 2014
Test procedure	DOC221130-A

The above instrument was calibrated by comparing the readings of the instrument to working standards of the manufacturer.

The wind measurement was one-point calibrated at zero-wind condition. Additional functional test for wind speed and wind direction at flow of 7 m/s was performed.

The analog output signals were calibrated for voltage and current modes with a three-point method. The output signal was measured. In current mode a calibrated 50 Ohm was used as load. At the time of shipment, the instrument described above met its operating specifications.

Order code 2B2A0A009B1A2

	Property	Feature
2	Measurement range	65 m/s WMT702
B	Temperature range	-40...+60 C
2	Heating	Heated transducers
A	Digital communication interface	RS-485 isolated
0	Digital communication profile	WMT70 - poll mode (default) 9600b, 8, N, 1 Polled
A	Digital communication units	m/s
0	Analog output signals for wind speed channel	Disabled
0	Analog output signals for wind direction channel	Disabled

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Domicile Vantaa, Finland | VAT FI01244162 | Business ID 0124416-2

Test Results

Test	Lower limit	Upper limit	Value	Unit
Input current	35	70	39.68	mA
Input voltage	23.8	24.2	24.00	V
Zerowind	0	0.2	0.05	m/s
Heating N resistance	58	70	66.57	Ω
Heating E resistance	58	70	65.69	Ω
Heating S resistance	58	70	63.18	Ω
Heating Body resistance	N/A	N/A	N/A	Ω
Functional wind speed	6	8	6.36	m/s
Functional wind direction	148	152	150.60	°

Calibration results

Measurement	Reference	Observed	Error	Unit
A1 current 90%	18.00	17.98	-0.02	mA
A1 current 10%	2.00	1.97	-0.03	mA
A1 voltage 90%	9.00	9.00	0.00	V
A1 voltage 10%	1.00	1.00	0.00	V
A1 freq 1005.00 Hz	1005.00	1004.52	-0.48	Hz
A2 current 90%	18.00	17.98	-0.02	mA
A2 current 10%	2.00	1.98	-0.02	mA
A2 voltage 90%	9.00	9.00	0.00	V
A2 voltage 10%	1.00	1.00	0.00	V
A2 potentiometer 90%	90.00	90.68	0.68	%
A2 potentiometer 10%	10.00	10.64	0.64	%
One-point wind calibration	0.00	0.05	0.05	m/s

Ambient conditions / Humidity 40.00 ± 5%RH, Temperature 23.70 ± 1 °C, Pressure 1014.00 ± 1 hPa.

Uncertainties (95 % confidence level, k=2)
Humidity ±0.6%RH @ 0..40%RH, ±0.9%RH @ 40..97%RH
Temperature ± 0.1 °C.

Technician

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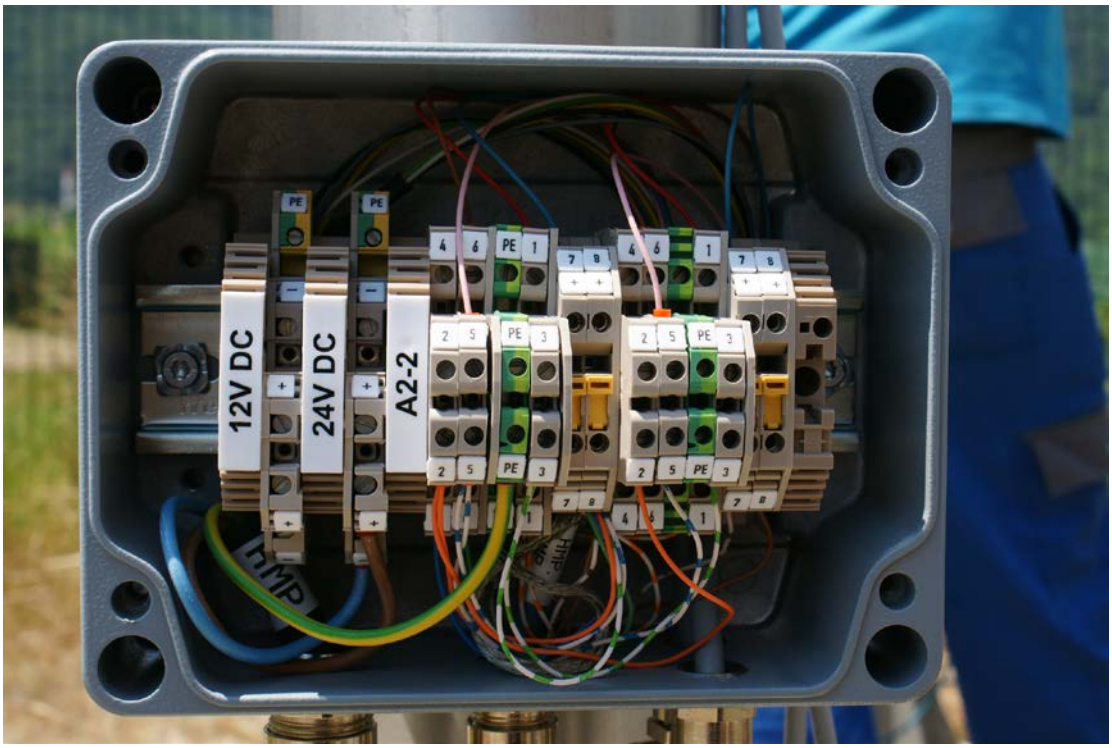
12V DC
24V DC
A2-2
PE


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KOHEZIJSKI SKLAD
»NALOŽBA V VAŠO PRIHODNOST«
OPERACIJO JE DELNO FINANCIRALA REPUBLIKA SLOVENIJA
BOBER
»NADGRADNJA SISTEMA ZA SPREMLJANJE IN ANALIZIRANJE STANJA VODNEGA OKOLJA V SLOVENIJI«
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