

MEMORY MAP FOR WS-2300

This is the currently known memory map of a WS23XX? weather station.

If you find more information please add it to the table. Do not be afraid of destroying anything. All versions are saved and we can always revert your changes.

Address ranges that are not identified are omitted to limit the size of this topic.

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0006	2	Bitsettings: bit3=buzzer off
000F	0	Wind unit: 0=m/s, 1=knots, 2=beaufort, 3=km/h, 4=mph
0016	7	Bitsettings: bit0=backlight
ALARM SET FLAGS (bits 3/2/1/0)		
0019	0	Alarm set flags: -/Storm warning/-/Time
001A	0	Alarm set flags: Pressure Hi/Pressure Ho/-/-
001B	0	Alarm set flags: T out Hi/T out Lo/T in Hi/T in Lo
001C	0	Alarm set flags: Dew Hi/Dew Lo/Windchill Hi/Windchill Lo
001D	0	Alarm set flags: Hum in Hi/Hum in Lo/Hum out Hi/Hum out Lo
001E	0	Alarm set flags: -/-/Rain 1h/Rain 24h
001F	0	Alarm set flags: -/Wind dir/Wind speed Hi/Wind speed Lo
0020	4	Alarm active flags: -/Alarm Icon/-/Time?
0021	0	Alarm active flags: Pressure Hi/Pressure Ho/-/-
0022	0	Alarm active flags: T out Hi/T out Lo/T in Hi/T in Lo
0023	0	Alarm active flags: Dew Hi/Dew Lo/Windchill Hi/Windchill Lo
0024	0	Alarm active flags: Hum in Hi/Hum in Lo/Hum out Hi/Hum out Lo
0025	0	Alarm active flags: -/-/Rain 1h/Rain 24h
0026	0	Alarm active flags: -/Wind dir/Wind speed Hi/Wind speed Lo
0027	0	Alarm active flags: Pressure Hi/Pressure Ho/-/-
0028	0	Alarm active flags: T out Hi/T out Lo/T in Hi/T in Lo

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0029	0	Alarm active flags: Dew Hi/Dew Lo/Windchill Hi/Windchill Lo
002A	0	Alarm active flags: Hum in Hi/Hum in Lo/Hum out Hi/Hum out Lo
002B	0	Alarm active flags: -/-/Rain 1h/Rain 24h
002C	0	Alarm active flags: -/-/Wind speed Hi/Wind speed Lo
TIME (UTC)		
0200	0	Current time: Seconds BCD 1s
0201	1	Current time: Seconds BCD 10s
0202	6	Current time: Minutes BCD 1s
0203	2	Current time: Minutes BCD 10s
0204	3	Current time: Hours BCD 1s
0205	0	Current time: Hours BCD 10s
TIME (LOCAL)		
023B	6	Current Time: Minutes BCD 1s
023C	2	Current Time: Minutes BCD 10s
023D	3	Current Time: Hours BCD 1s
023E	0	Current Time: Hours BCD 10s
023F	4	Current Weekday: Mon-Sun = 1-7
0240	4	Current day of month: BCD 1s
0241	2	Current day of month: BCD 10s
0242	4	Current month: BCD 1s
0243	0	Current month: BCD 10s
0244	3	Current year: BCD 1s last two digits
0245	0	Current year: BCD 10s last two digit
DATE UNIT SET		
024D	1	Date the unit was last set to: BCD 1s
024E	2	Date the unit was last set to: BCD 10s
024F	4	Month the unit was last set to: BCD 1s
0250	0	Month the unit was last set to: BCD 10s

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0251	3	Year the unit was last set to: BCD 1s
0252	0	Year the unit was last set to: BCD 10s
TIME ZONE		
0253	0	Zone: Binary (2's comp) nibble 0 [Range F4 (-12) to 0C (+12)]
0254	0	Zone: Binary (2's comp) nibble 1 (high bit is also sign for BCD value)
0255	0	Zone: BCD 1s
0256	0	Zone: BCD 10s
Note: Must set both binary and BCD values to change zone. Local time is recalculated at the next minute interval		
LCD		
0266	4	LCD contrast value -1. Changing it has no impact on LCD. Read only
TENDENCY/FORECAST		
026B	0	Forecast: 0=rainy, 1=cloudy, 2=sunny
026C	2	Tendency: 0=steady, 1=rising, 2=falling
INDOOR TEMPERATURE		
0346	0	Current Indoor Temperature: BCD offset 30 0.01s [C]
0347	6	Current Indoor Temperature: BCD offset 30 0.1s [C]
0348	8	Current Indoor Temperature: BCD offset 30 1s [C]
0349	5	Current Indoor Temperature: BCD offset 30 10s [C]
034A	0	
034B	0	Minimum Indoor Temperature: BCD offset 30 0.01s [C]
034C	5	Minimum Indoor Temperature: BCD offset 30 0.1s [C]
034D	5	Minimum Indoor Temperature: BCD offset 30 1s [C]
034E	4	Minimum Indoor Temperature: BCD offset 30 10s [C]
034F	0	
0350	0	Maximum Indoor Temperature: BCD offset 30 0.1s [C]
0351	7	Maximum Indoor Temperature: BCD offset 30 0.1s [C]
0352	9	Maximum Indoor Temperature: BCD offset 30 1s [C]

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0353	5	Maximum Indoor Temperature: BCD offset 30 10s [C]
0354	0	Time min Indoor Temperature:, minutes BCD 1s
0355	2	Time min Indoor Temperature:, minutes BCD 10s
0356	2	Time min Indoor Temperature:, hours BCD 1s
0357	1	Time min Indoor Temperature:, hours BCD 10s
0358	1	Date min Indoor Temperature:, BCD day 1s
0359	0	Date min Indoor Temperature:, BCD day 10s
035A	1	Date min Indoor Temperature:, BCD month 1s
035B	0	Date min Indoor Temperature:, BCD month 10s
035C	1	Date min Indoor Temperature:, BCD year 1s
035D	0	Date min Indoor Temperature:, BCD year 10s
035E	5	Time max Indoor Temperature:, minutes BCD 1s
035F	5	Time max Indoor Temperature:, minutes BCD 10s
0360	7	Time max Indoor Temperature:, hours BCD 1s
0361	1	Time max Indoor Temperature:, hours BCD 10s
0362	1	Date max Indoor Temperature:, BCD day 1s
0363	2	Date max Indoor Temperature:, BCD day 10s
0364	4	Date max Indoor Temperature:, BCD month 1s
0365	0	Date max Indoor Temperature:, BCD month 10s
0366	3	Date max Indoor Temperature:, BCD year 1s
0367	0	Date max Indoor Temperature:, BCD year 10s
0368	0	
0369	0	Low Alarm Indoor Temperature: BCD offset 30 0.01s [C]
036A	1	Low Alarm Indoor Temperature: BCD offset 30 0.1s [C]
036B	7	Low Alarm Indoor Temperature: BCD offset 30 1s [C]
036C	4	Low Alarm Indoor Temperature: BCD offset 30 10s [C]
036D	0	
036E	0	High Alarm Indoor Temperature: BCD offset 30 0.01s [C]
036F	6	High Alarm Indoor Temperature: BCD offset 30 0.1s [C]

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0370	9	High Alarm Indoor Temperature: BCD offset 30 1s [C]
0371	5	High Alarm Indoor Temperature: BCD offset 30 10s [C]
0372	0	
OUTDOOR TEMPERATURE		
0373	0	Current Outdoor Temperature: BCD offset 30 0.01s [C]
0374	4	Current Outdoor Temperature: BCD offset 30 0.1s [C]
0375	7	Current Outdoor Temperature: BCD offset 30 1s [C]
0376	3	Current Outdoor Temperature: BCD offset 30 10s [C]
0377	0	
0378	0	Minimum Outdoor Temperature: BCD offset 30 0.01s [C]
0379	5	Minimum Outdoor Temperature: BCD offset 30 0.1s [C]
037A	2	Minimum Outdoor Temperature: BCD offset 30 1s [C]
037B	3	Minimum Outdoor Temperature: BCD offset 30 10s [C]
037C	0	
037D	0	Maximum Outdoor Temperature: BCD offset 30 0.01s [C]
037E	8	Maximum Outdoor Temperature: BCD offset 30 0.1s [C]
037F	5	Maximum Outdoor Temperature: BCD offset 30 1s [C]
0380	6	Maximum Outdoor Temperature: BCD offset 30 10s [C]
0381	5	Time min Outdoor Temperature:, minutes BCD 1s
0382	2	Time min Outdoor Temperature:, minutes BCD 10s
0383	6	Time min Outdoor Temperature:, hours BCD 1s
0384	0	Time min Outdoor Temperature:, hours BCD 10s
0385	7	Date min Outdoor Temperature:, BCD day 1s
0386	1	Date min Outdoor Temperature:, BCD day 10s
0387	4	Date min Outdoor Temperature:, BCD month 1s
0388	0	Date min Outdoor Temperature:, BCD month 10s
0389	3	Date min Outdoor Temperature:, BCD year 1s
038A	0	Date min Outdoor Temperature:, BCD year 10s
038B	1	Time max Outdoor Temperature:, minutes BCD 1s

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
038C	0	Time max Outdoor Temperature:, minutes BCD 10s
038D	7	Time max Outdoor Temperature:, hours BCD 1s
038E	1	Time max Outdoor Temperature:, hours BCD 10s
038F	7	Date max Outdoor Temperature:, BCD day 1s
0390	1	Date max Outdoor Temperature:, BCD day 10s
0391	4	Date max Outdoor Temperature:, BCD month 1s
0392	0	Date max Outdoor Temperature:, BCD month 10s
0393	3	Date max Outdoor Temperature:, BCD year 1s
0394	0	Date max Outdoor Temperature:, BCD year 10s
0395	0	
0396	0	Low Alarm Outdoor Temperature: BCD offset 30 0.01s [C]
0397	0	Low Alarm Outdoor Temperature: BCD offset 30 0.1s [C]
0398	0	Low Alarm Outdoor Temperature: BCD offset 30 1s [C]
0399	3	Low Alarm Outdoor Temperature: BCD offset 30 10s [C]
039A	0	
039B	0	High Alarm Outdoor Temperature: BCD offset 30 0.01s [C]
039C	0	High Alarm Outdoor Temperature: BCD offset 30 0.1s [C]
039D	0	High Alarm Outdoor Temperature: BCD offset 30 1s [C]
039E	7	High Alarm Outdoor Temperature: BCD offset 30 10s [C]
039F	0	
WINDCHILL		
03A0	0	Current Windchill: BCD offset 30 0.01s [C]
03A1	4	Current Windchill: BCD offset 30 0.1s [C]
03A2	7	Current Windchill: BCD offset 30 1s [C]
03A3	3	Current Windchill: BCD offset 30 10s [C]
03A4	8	
03A5	0	Minimum Windchill: BCD offset 30 0.01s [C]
03A6	2	Minimum Windchill: BCD offset 30 0.1s [C]
03A7	8	Minimum Windchill: BCD offset 30 1s [C]

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
03A8	1	Minimum Windchill: BCD offset 30 10s [C]
03A9	0	
03AA	0	Maximum Windchill: BCD offset 30 0.01s [C]
03AB	8	Maximum Windchill: BCD offset 30 0.1s [C]
03AC	9	Maximum Windchill: BCD offset 30 1s [C]
03AD	4	Maximum Windchill: BCD offset 30 10s [C]
03AE	2	Time min Windchill:, minutes BCD 1s
03AF	0	Time min Windchill:, minutes BCD 10s
03B0	6	Time min Windchill:, hours BCD 1s
03B1	0	Time min Windchill:, hours BCD 10s
03B2	9	Date min Windchill:, BCD day 1s
03B3	1	Date min Windchill:, BCD day 10s
03B4	4	Date min Windchill:, BCD month 1s
03B5	0	Date min Windchill:, BCD month 10s
03B6	3	Date min Windchill:, BCD year 1s
03B7	0	Date min Windchill:, BCD year 10s
03B8	6	Time max Windchill:, minutes BCD 1s
03B9	4	Time max Windchill:, minutes BCD 10s
03BA	8	Time max Windchill:, hours BCD 1s
03BB	0	Time max Windchill:, hours BCD 10s
03BC	3	Date max Windchill:, BCD day 1s
03BD	2	Date max Windchill:, BCD day 10s
03BE	4	Date max Windchill:, BCD month 1s
03BF	0	Date max Windchill:, BCD month 10s
03C0	3	Date max Windchill:, BCD year 1s
03C1	0	Date max Windchill:, BCD year 10s
03C2	0	
03C3	0	Low Alarm Windchill: BCD offset 30 0.01s [C]
03C4	0	Low Alarm Windchill: BCD offset 30 0.1s [C]

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
03C5	5	Low Alarm Windchill: BCD offset 30 1s [C]
03C6	3	Low Alarm Windchill: BCD offset 30 10s [C]
03C7	0	
03C8	0	High Alarm Windchill: BCD offset 30 0.01s [C]
03C9	0	High Alarm Windchill: BCD offset 30 0.1s [C]
03CA	0	High Alarm Windchill: BCD offset 30 1s [C]
03CB	6	High Alarm Windchill: BCD offset 30 10s [C]
03CC	0	
03CD	0	
DEWPOINT		
03CE	9	Current Dewpoint: BCD offset 30 0.01s [C]
03CF	4	Current Dewpoint: BCD offset 30 0.1s [C]
03D0	2	Current Dewpoint: BCD offset 30 1s [C]
03D1	3	Current Dewpoint: BCD offset 30 10s [C]
03D2	6	
03D3	1	Minimum Dewpoint: BCD offset 30 0.01s [C]
03D4	1	Minimum Dewpoint: BCD offset 30 0.1s [C]
03D5	3	Minimum Dewpoint: BCD offset 30 1s [C]
03D6	2	Minimum Dewpoint: BCD offset 30 1s [C]
03D7	0	
03D8	4	Maximum Dewpoint: BCD offset 30 0.01s [C]
03D9	4	Maximum Dewpoint: BCD offset 30 0.1s [C]
03DA	8	Maximum Dewpoint: BCD offset 30 1s [C]
03DB	3	Maximum Dewpoint: BCD offset 30 10s [C]
03DC	7	Time min Dewpoint:, minutes BCD 1s
03DD	1	Time min Dewpoint:, minutes BCD 10s
03DE	7	Time min Dewpoint:, hours BCD 1s
03DF	1	Time min Dewpoint:, hours BCD 10s
03E0	0	Date min Dewpoint:, BCD day 1s

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
03E1	2	Date min Dewpoint:, BCD day 10s
03E2	4	Date min Dewpoint:, BCD month 1s
03E3	0	Date min Dewpoint:, BCD month 10s
03E4	3	Date min Dewpoint:, BCD year 1s
03E5	0	Date min Dewpoint:, BCD year 10s
03E6	2	Time max Dewpoint:, minutes BCD 1s
03E7	0	Time max Dewpoint:, minutes BCD 10s
03E8	0	Time max Dewpoint:, hours BCD 1s
03E9	0	Time max Dewpoint:, hours BCD 10s
03EA	1	Date max Dewpoint:, BCD day 1s
03EB	0	Date max Dewpoint:, BCD day 10s
03EC	1	Date max Dewpoint:, BCD month 1s
03ED	0	Date max Dewpoint:, BCD month 10s
03EE	1	Date max Dewpoint:, BCD year 1s
03EF	0	Date max Dewpoint:, BCD year 10s
03F0	0	
03F1	0	Low Alarm Dewpoint: BCD offset 30 0.01s [C]
03F2	0	Low Alarm Dewpoint: BCD offset 30 0.1s [C]
03F3	0	Low Alarm Dewpoint: BCD offset 30 1s [C]
03F4	3	Low Alarm Dewpoint: BCD offset 30 10s [C]
03F5	0	
03F6	0	High Alarm Dewpoint: BCD offset 30 0.01s [C]
03F7	0	High Alarm Dewpoint: BCD offset 30 0.1s [C]
03F8	0	High Alarm Dewpoint: BCD offset 30 1s [C]
03F9	5	High Alarm Dewpoint: BCD offset 30 10s [C]
03FA	2	
HUMIDITY INDOORS		
03FB	4	Rel Humidity Indoors: BCD 1s [%]
03FC	2	Rel Humidity Indoors: BCD 10s [%]

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
03FD	9	Minimum Rel Humidity Indoors: BCD 1s [%]
03FE	1	Minimum Rel Humidity Indoors: BCD 10s [%]
03FF	7	Maximum Rel Humidity Indoors: BCD 1s [%]
0400	4	Maximum Rel Humidity Indoors: BCD 10s [%]
0401	8	Time min Rel Humidity Indoors:, minutes BCD 1s
0402	1	Time min Rel Humidity Indoors:, minutes BCD 10s
0403	0	Time min Rel Humidity Indoors:, hours BCD 1s
0404	0	Time min Rel Humidity Indoors:, hours BCD 10s
0405	1	Date min Rel Humidity Indoors:, BCD day 1s
0406	2	Date min Rel Humidity Indoors:, BCD day 10s
0407	4	Date min Rel Humidity Indoors:, BCD month 1s
0408	0	Date min Rel Humidity Indoors:, BCD month 10s
0409	3	Date min Rel Humidity Indoors:, BCD year 1s
040A	0	Date min Rel Humidity Indoors:, BCD year 10s
040B	5	Time max Rel Humidity Indoors:, minutes BCD 1s
040C	4	Time max Rel Humidity Indoors:, minutes BCD 10s
040D	3	Time max Rel Humidity Indoors:, hours BCD 1s
040E	2	Time max Rel Humidity Indoors:, hours BCD 10s
040F	4	Date max Rel Humidity Indoors:, BCD day 1s
0410	1	Date max Rel Humidity Indoors:, BCD day 10s
0411	4	Date max Rel Humidity Indoors:, BCD month 1s
0412	0	Date max Rel Humidity Indoors:, BCD month 10s
0413	3	Date max Rel Humidity Indoors:, BCD year 1s
0414	0	Date max Rel Humidity Indoors:, BCD year 10s
0415	5	Low Alarm Rel Humidity Indoors: BCD 1s [%]
0416	3	Low Alarm Rel Humidity Indoors: BCD 10s [%]
0417	5	Hign Alarm Rel Humidity Indoors: BCD 1s [%]
0418	6	High Alarm Rel Humidity Indoors: BCD 10s [%]
HUMIDITY OUTDOORS		

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0419	1	Rel Humidity Outdoors: BCD 1s [%]
041A	7	Rel Humidity Outdoors: BCD 10s [%]
041B	9	Minimum Rel Humidity Outdoors: BCD 1s [%]
041C	1	Minimum Rel Humidity Outdoors: BCD 10s [%]
041D	8	Maximum Rel Humidity Outdoors: BCD 1s [%]
041E	7	Maximum Rel Humidity Outdoors: BCD 10s [%]
041F	9	Time min Rel Humidity Outdoors:, minutes BCD 1s
0420	1	Time min Rel Humidity Outdoors:, minutes BCD 10s
0421	7	Time min Rel Humidity Outdoors:, hours BCD 1s
0422	1	Time min Rel Humidity Outdoors:, hours BCD 10s
0423	1	Date min Rel Humidity Outdoors:, BCD day 1s
0424	2	Date min Rel Humidity Outdoors:, BCD day 10s
0425	4	Date min Rel Humidity Outdoors:, BCD month 1s
0426	0	Date min Rel Humidity Outdoors:, BCD month 10s
0427	3	Date min Rel Humidity Outdoors:, BCD year 1s
0428	0	Date min Rel Humidity Outdoors:, BCD year 10s
0429	6	Time max Rel Humidity Outdoors:, minutes BCD 1s
042A	2	Time max Rel Humidity Outdoors:, minutes BCD 10s
042B	7	Time max Rel Humidity Outdoors:, hours BCD 1s
042C	0	Time max Rel Humidity Outdoors:, hours BCD 10s
042D	9	Date max Rel Humidity Outdoors:, BCD day 1s
042E	1	Date max Rel Humidity Outdoors:, BCD day 10s
042F	4	Date max Rel Humidity Outdoors:, BCD month 1s
0430	0	Date max Rel Humidity Outdoors:, BCD month 10s
0431	3	Date max Rel Humidity Outdoors:, BCD year 1s
0432	0	Date max Rel Humidity Outdoors:, BCD year 10s
0433	5	Low Alarm Rel Humidity Outdoors: BCD 1s [%]
0434	4	Low Alarm Rel Humidity Outdoors: BCD 10s [%]
0435	0	Hign Alarm Rel Humidity Outdoors: BCD 1s [%]

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0436	7	High Alarm Rel Humidity Outdoors: BCD 10s [%]
0437	6	
0438	0	
0439	2	

RAIN COUNTING AREA

The station counts rainfall in "impulses" of 0.518 [mm] and keeps a number of rolling counters as 3 nibble binary values. As the station proceeds through various calculations these counters progressively end up with the same value.

Remote station raincount last reading from the remote rain sensor. Resets to zero when remote batteries changed.

Remote station raincount 2? Seems to always be the same as the above value, not sure why the station would need that.

Last rainfall total counter previous counter value used to increment Rain Total (04D2) **Use as basis to interpret history data**

Last 24HR counter previous counter value used to increment rainfall in the last hour

Last 1HR counter previous counter value used to increment rainfall in the last 4 minutes

Last 24hr rainfall is tracked as 24 * 2 binary nibbles representing the number of impulses that occurred x hours ago. The most recent one is updated frequently with the latest information. On the hour, the values are rolled down and the 24HR total (0497) recalculated as the sum of these values.

Last 1hr rainfall is tracked as 15 * 2 binary nibbles representing the number of impulses that occurred in each 4 minutes of the last hour. The most recent one is updated frequently with the latest information. Every 4 minutes the values are rolled down and the 1HR total (04B4) recalculated as the sum of these values.

-- [GrantGardner](#) - 18/19 Dec 2007

043A	C	Remote station raincount: binary nibble 0
043B	F	Remote station raincount: binary nibble 1
043C	0	Remote station raincount: binary nibble 2
043D	C	Last valid raincount: binary nibble 0
043E	F	Last valid raincount: binary nibble 1
043F	0	Last valid raincount: binary nibble 2
0440	C	Last rain total counter: binary nibble 0
0441	F	Last rain total counter: binary nibble 1
0442	0	Last rain total counter: binary nibble 2
0443	C	Last 24HR counter: binary nibble 0
0444	F	Last 24HR counter: binary nibble 1

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0445	0	Last 24HR counter: binary nibble 2
0446	0	Last hour raincount: binary nibble 0 * 0.518 [mm]
0447	0	Last hour raincount: binary nibble 1
... hourly raincounts ...		
0474	0	Raincount 24th hour: binary nibble 0 * 0.518 [mm]
0475	0	Raincount 24th hour: binary nibble 1
0476	C	Last 1HR counter: binary nibble 0
0477	F	Last 1HR counter: binary nibble 1
0478	0	Last 1HR counter: binary nibble 2
0479	0	Last 4 minutes raincount: binary nibble 0 * 0.518 [mm]
047A	0	Last 4 minutes raincount: binary nibble 1
... 4 minute raincounts ...		
0495	0	Raincount 56 - 60 minutes ago: binary nibble 0 * 0.518 [mm]
0496	0	Raincount 56 - 60 minutes ago: binary nibble 1
RAIN 24 HOUR		
0497	0	Rain 24 hour: BCD 0.01s [mm]
0498	0	Rain 24 hour: BCD 0.1s [mm]
0499	0	Rain 24 hour: BCD 1s [mm]
049A	0	Rain 24 hour: BCD 10s [mm]
049B	0	Rain 24 hour: BCD 100s [mm]
049C	0	Rain 24 hour: BCD 1000s [mm]
049D	8	Rain max 24 hour: BCD 0.01s [mm]
049E	9	Rain max 24 hour: BCD 0.1s [mm]
049F	8	Rain max 24 hour: BCD 1s [mm]
04A0	2	Rain max 24 hour: BCD 10s [mm]
04A1	1	Rain max 24 hour: BCD 100s [mm]
04A2	0	Rain max 24 hour: BCD 1000s [mm]
04A3	9	Time max rain 24h, minutes BCD 1s
04A4	5	Time max rain 24h, minutes BCD 10s

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
04A5	4	Time max rain 24h, hours BCD 1s
04A6	1	Time max rain 24h, hours BCD 10s
04A7	1	Date max rain 24h, BCD day 1s
04A8	2	Date max rain 24h, BCD day 10s
04A9	4	Date max rain 24h, BCD month 1s
04AA	0	Date max rain 24h, BCD month 10s
04AB	3	Date max rain 24h , BCD year 1s
04AC	0	Date max rain 24h, BCD year 10s
04AD	0	
04AE	0	Alarm Rain 24h, BCD 0.01 [mm] (probably not really used)
04AF	0	Alarm Rain 24h, BCD 0.1 [mm]
04B0	7	Alarm Rain 24h, BCD 1 [mm]
04B1	0	Alarm Rain 24h, BCD 10 [mm]
04B2	0	Alarm Rain 24h, BCD 100 [mm]
04B3	0	Alarm Rain 24h, BCD 1000 [mm]
RAIN 1 HOUR		
04B4	0	Rain 1 hour: BCD 0.01s [mm]
04B5	0	Rain 1 hour: BCD 0.1s [mm]
04B6	0	Rain 1 hour: BCD 1s [mm]
04B7	0	Rain 1 hour: BCD 10s [mm]
04B8	0	Rain 1 hour: BCD 100s [mm]
04B9	0	Rain 1 hour: BCD 1000s [mm]
04BA	6	Rain max 1 hour: BCD 0.01s [mm]
04BB	4	Rain max 1 hour: BCD 0.1s [mm]
04BC	8	Rain max 1 hour: BCD 1s [mm]
04BD	2	Rain max 1 hour: BCD 10s [mm]
04BE	1	Rain max 1 hour: BCD 100s [mm]
04BF	0	Rain max 1 hour: BCD 1000s [mm]
04C0	8	Time max rain 1h, minutes BCD 1s

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
04C1	0	Time max rain 1h, minutes BCD 10s
04C2	6	Time max rain 1h, hours BCD 1s
04C3	1	Time max rain 1h, hours BCD 10s
04C4	0	Date max rain 1h, BCD day 1s
04C5	2	Date max rain 1h, BCD day 10s
04C6	4	Date max rain 1h, BCD month 1s
04C7	0	Date max rain 1h, BCD month 10s
04C8	3	Date max rain 1h , BCD year 1s
04C9	0	Date max rain 1h, BCD year 10s
04CA	0	
04CB	0	Alarm Rain 1h, BCD 0.01 [mm] (probably not really used)
04CC	7	Alarm Rain 1h, BCD 0.1 [mm]
04CD	0	Alarm Rain 1h, BCD 1 [mm]
04CE	0	Alarm Rain 1h, BCD 10 [mm]
04CF	0	Alarm Rain 1h, BCD 100 [mm]
04D0	0	Alarm Rain 1h, BCD 1000 [mm]
04D1	2	
RAIN TOTAL		
04D2	2	Rain total: BCD 0.01s [mm]
04D3	5	Rain total: BCD 0.1s [mm]
04D4	4	Rain total: BCD 1s [mm]
04D5	4	Rain total: BCD 10s [mm]
04D6	1	Rain total: BCD 100s [mm]
04D7	0	Rain total: BCD 1000s [mm]
04D8	0	Time for reset of rain total, minutes BCD 1s
04D9	4	Time for reset of rain total, minutes BCD 10s
04DA	3	Time for reset of rain total, hours BCD 1s
04DB	2	Time for reset of rain total, hours BCD 10s
04DC	4	Date for reset of rain total, BCD day 1s

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
04DD	1	Date for reset of rain total, BCD day 10s
04DE	4	Date for reset of rain total, BCD month 1s
04DF	0	Date for reset of rain total, BCD month 10s
04E0	3	Date for reset of rain total , BCD year 1s
04E1	0	Date for reset of rain total, BCD year 10s
04E2	F	
04E3	F	
04E4	F	
04E5	F	
04E6	0	
04E7	0	
04E8	0	
04E9	0	
04EA	0	
04EB	0	
04EC	0	
04ED	0	
WIND MIN/MAX		
04EE	0	Minimum wind: binary nibble 0, nnnn/360 [m/s]
04EF	0	Minimum wind: binary nibble 1, -
04F0	0	Minimum wind: binary nibble 2, -
04F1	0	Minimum wind: binary nibble 3, -
04F2	0	
04F3	0	
04F4	C	Maximum wind: binary nibble 0, nnnn/360 [m/s]
04F5	D	Maximum wind: binary nibble 1, -
04F6	3	Maximum wind: binary nibble 2, -
04F7	2	Maximum wind: binary nibble 3, -
04F8	6	Time min wind, minutes BCD 1s

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
04F9	2	Time min wind, minutes BCD 10s
04FA	3	Time min wind, hours BCD 1s
04FB	0	Time min wind, hours BCD 10s
04FC	4	Date min wind, BCD day 1s
04FD	2	Date min wind, BCD day 10s
04FE	4	Date min wind, BCD month 1s
04FF	0	Date min wind, BCD month 10s
0500	3	Date min wind, BCD year 1s
0501	0	Date min wind, BCD year 10s
0502	5	Time max wind, minutes BCD 1s
0503	2	Time max wind, minutes BCD 10s
0504	3	Time max wind, hours BCD 1s
0505	0	Time max wind, hours BCD 10s
0506	4	Date max wind, BCD day 1s
0507	2	Date max wind, BCD day 10s
0508	4	Date max wind, BCD month 1s
0509	0	Date max wind, BCD month 10s
050A	3	Date max wind, BCD year 1s
050B	0	Date max wind, BCD year 10s
050C	0	
050D	0	
WIND ALARM (Read Only - Set values at 533-535 and 538-53A)		
050E	0	Low wind alarm setting (Read Only): binary nibble 0 [km/h / 100]
050F	0	Low wind alarm setting (Read Only): binary nibble 1 [km/h / 100]
0510	0	Low wind alarm setting (Read Only): binary nibble 2 [km/h / 100]
0511	0	Low wind alarm setting (Read Only): binary nibble 3 [km/h / 100]
0512	F	

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0513	F	
0514	7	Low wind alarm setting (Read Only): binary nibble 0 [km/h / 100]
0515	6	Low wind alarm setting (Read Only): binary nibble 1 [km/h / 100]
0516	1	Low wind alarm setting (Read Only): binary nibble 2 [km/h / 100]
0517	0	Low wind alarm setting (Read Only): binary nibble 3 [km/h / 100]
0518	0	
0519	0	Alarmed windspeed (or current if no alarm): BCD 0.1s [m/s]
051A	0	Alarmed windspeed (or current if no alarm): BCD 1s [m/s]
051B	0	Alarmed windspeed (or current if no alarm): BCD 10s [m/s]
051C	0	
051D	0	
051E	0	
051F	0	
0520	0	
0521	0	
0522	0	
0523	5	
0524	5	
0525	2	
0526	0	
WIND SPEED AND DIRECTION		
0527	0	Wind overflow flag: 0 = normal
0528	0	Wind minimum code: 0=min, 1=--, 2=OFL
0529	0	Windspeed: binary nibble 0 [m/s * 10]
052A	0	Windspeed: binary nibble 1 [m/s * 10]
052B	0	Windspeed: binary nibble 2 [m/s * 10]
052C	8	Wind Direction = nibble * 22.5 degrees

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
052D	8	Wind Direction 1 measurement ago
052E	9	Wind Direction 2 measurement ago
052F	8	Wind Direction 3 measurement ago
0530	7	Wind Direction 4 measurement ago
0531	7	Wind Direction 5 measurement ago
0532	0	
WIND ALARM SETTING (Changing this causes 50E-511 or 514-517 to be updated)		
0533	0	Low wind alarm setting: BCD 0.1s [m/s]
0534	0	Low wind alarm setting: BCD 1s [m/s]
0535	0	Low wind alarm setting: BCD 10s [m/s]
0536	0	
0537	0	
0538	0	High wind alarm setting: BCD 0.1s [m/s]
0539	1	High wind alarm setting: BCD 1s [m/s]
053A	0	High wind alarm setting: BCD 10s [m/s]
053B	0	
053C	F	
053D	F	
053E	9	
053F	0	
0540	0	
0541	0	
0542	0	
0543	0	
0544	0	
0545	0	
0546	0	
0547	0	
0548	2	

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0549	8	
054A	F	
054B	0	
HF Reception, 550/54F start value: 0F=cable, 3F=lost, FF=Wireless		
054C	D	
054D	0	Connection Type: 0=Cable, 3=lost, F=Wireless
054E	0	
054F	C	Countdown time to next datBinary nibble 0, [0.5 sec]
0550	0	Countdown time to next datBinary nibble 1, [0.5 sec]
AIR PRESSURE		
05D8	2	Absolute air pressure: BCD 0.1s [hPa]
05D9	6	Absolute air pressure: BCD 1s [hPa]
05DA	1	Absolute air pressure: BCD 10s [hPa]
05DB	0	Absolute air pressure: BCD 100s [hPa]
05DC	1	Absolute air pressure: BCD 1000s [hPa]
05DD	0	Absolute air pressure: BCD 0.01s [Hg]
05DE	0	Absolute air pressure: BCD 0.1s [Hg]
05DF	0	Absolute air pressure: BCD 1s [Hg]
05E0	3	Absolute air pressure: BCD 10s [Hg]
05E1	0	
05E2	4	Relative air pressure: BCD 0.1s [hPa]
05E3	8	Relative air pressure: BCD 1s [hPa]
05E4	1	Relative air pressure: BCD 10s [hPa]
05E5	0	Relative air pressure: BCD 100s [hPa]
05E6	1	Relative air pressure: BCD 1000s [hPa]
05E7	7	Relative air pressure: BCD 0.01s [Hg]
05E8	0	Relative air pressure: BCD 0.1s [Hg]
05E9	0	Relative air pressure: BCD 1s [Hg]
05EA	3	Relative air pressure: BCD 10s [Hg]

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
05EB	0	
05EC	2	Air pressure correction: BCD 0.1s [hPa] offset 1000
05ED	2	Air pressure correction: BCD 1s [hPa] offset 1000
05EE	0	Air pressure correction: BCD 10s [hPa] offset 1000
05EF	0	Air pressure correction: BCD 100s [hPa] offset 1000
05F0	1	Air pressure correction: BCD 1000s [hPa] offset 1000
05F1	7	Air pressure correction: BCD 0.01s [Hg] offset 1000
05F2	0	Air pressure correction: BCD 0.1s [Hg] offset 1000
05F3	0	Air pressure correction: BCD 1s [Hg] offset 1000
05F4	0	Air pressure correction: BCD 10s [Hg] offset 1000
05F5	1	
05F6	0	Absolute air pressure minimum: BCD 0.1s [hPa]
05F7	3	Absolute air pressure minimum: BCD 1s [hPa]
05F8	1	Absolute air pressure minimum: BCD 10s [hPa]
05F9	0	Absolute air pressure minimum: BCD 100s [hPa]
05FA	1	Absolute air pressure minimum: BCD 1000s [hPa]
05FB	1	Absolute air pressure minimum: BCD 0.01s [Hg]
05FC	9	Absolute air pressure minimum: BCD 0.1s [Hg]
05FD	9	Absolute air pressure minimum: BCD 1s [Hg]
05FE	2	Absolute air pressure minimum: BCD 10s [Hg]
05FF	0	
0600	2	Relative air pressure minimum: BCD 0.1s [hPa]
0601	5	Relative air pressure minimum: BCD 1s [hPa]
0602	1	Relative air pressure minimum: BCD 10s [hPa]
0603	0	Relative air pressure minimum: BCD 100s [hPa]
0604	1	Relative air pressure minimum: BCD 1000s [hPa]
0605	7	Relative air pressure minimum: BCD 0.01s [Hg]
0606	9	Relative air pressure minimum: BCD 0.1s [Hg]
0607	9	Relative air pressure minimum: BCD 1s [Hg]

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0608	2	Relative air pressure minimum: BCD 10s [Hg]
0609	0	
060A	6	Absolute air pressure maximum: BCD 0.1s [hPa]
060B	4	Absolute air pressure maximum: BCD 1s [hPa]
060C	3	Absolute air pressure maximum: BCD 10s [hPa]
060D	0	Absolute air pressure maximum: BCD 100s [hPa]
060E	1	Absolute air pressure maximum: BCD 1000s [hPa]
060F	5	Absolute air pressure maximum: BCD 0.01s [Hg]
0610	5	Absolute air pressure maximum: BCD 0.1s [Hg]
0611	0	Absolute air pressure maximum: BCD 1s [Hg]
0612	3	Absolute air pressure maximum: BCD 10s [Hg]
0613	0	
0614	8	Relative air pressure maximum: BCD 0.1s [hPa]
0615	6	Relative air pressure maximum: BCD 1s [hPa]
0616	3	Relative air pressure maximum: BCD 10s [hPa]
0617	0	Relative air pressure maximum: BCD 100s [hPa]
0618	1	Relative air pressure maximum: BCD 1000s [hPa]
0619	1	Relative air pressure maximum: BCD 0.01s [Hg]
061A	6	Relative air pressure maximum: BCD 0.1s [Hg]
061B	0	Relative air pressure maximum: BCD 1s [Hg]
061C	3	Relative air pressure maximum: BCD 10s [Hg]
061D	0	
061E	2	Time min air pressure, minutes BCD 1s
061F	0	Time min air pressure, minutes BCD 10s
0620	5	Time min air pressure, hours BCD 1s
0621	0	Time min air pressure, hours BCD 10s
0622	3	Date min air pressure, BCD day 1s
0623	2	Date min air pressure, BCD day 10s
0624	4	Date min air pressure, BCD month 1s

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0625	0	Date min air pressure, BCD month 10s
0626	3	Date min air pressure, BCD year 1s
0627	0	Date min air pressure, BCD year 10s
0628	6	Time max air pressure, minutes BCD 1s
0629	4	Time max air pressure, minutes BCD 10s
062A	2	Time max air pressure, hours BCD 1s
062B	0	Time max air pressure, hours BCD 10s
062C	8	Date max air pressure, BCD day 1s
062D	1	Date max air pressure, BCD day 10s
062E	4	Date max air pressure, BCD month 1s
062F	0	Date max air pressure, BCD month 10s
0630	3	Date max air pressure, BCD year 1s
0631	0	Date max air pressure, BCD year 10s
0632	4	
0633	1	
0634	6	
0635	9	
0636	0	
0637	9	
0638	3	
0639	8	
063A	2	
063B	0	
063C	6	Low Alarm air pressure, BCD 0.1 [hPa]
063D	3	Low Alarm air pressure, BCD 1 [hPa]
063E	6	Low Alarm air pressure, BCD 10 [hPa]
063F	9	Low Alarm air pressure, BCD 100 [hPa]
0640	0	Low Alarm air pressure, BCD 1000 [hPa]
0641	6	

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
0642	4	
0643	8	
0644	2	
0645	0	
0646	8	
0647	8	
0648	3	
0649	0	
064A	1	
064B	7	
064C	6	
064D	0	
064E	3	
064F	0	
0650	0	High Alarm air pressure, BCD 0.1 [hPa]
0651	1	High Alarm air pressure, BCD 1 [hPa]
0652	4	High Alarm air pressure, BCD 10 [hPa]
0653	0	High Alarm air pressure, BCD 100 [hPa]
0654	1	High Alarm air pressure, BCD 1000 [hPa]
HISTORY SETTINGS		
06B2	1	History saving interval: Binary nibble 0 [minutes]
06B3	0	History saving interval: Binary nibble 1 [minutes]
06B4	0	History saving interval: Binary nibble 2 [minutes]
06B5	1	Countdown to next saving: Binary nibble 0 [minutes]
06B6	0	Countdown to next saving: Binary nibble 1 [minutes]
06B7	0	Countdown to next saving: Binary nibble 2 [minutes]
06B8	6	Time last record, minutes BCD 1s
06B9	2	Time last record, minutes BCD 10s
06BA	3	Time last record, hours BCD 1s

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
06BB	0	Time last record, hours BCD 10s
06BC	4	Date last record, BCD day 1s
06BD	2	Date last record, BCD day 10s
06BE	4	Date last record, BCD month 1s
06BF	0	Date last record, BCD month 10s
06C0	3	Date last record, BCD year 1s
06C1	0	Date last record, BCD year 10s
06C2	6	Pointer to last written Record: Binary nibble 0 [Range 00-AE]
06C3	9	Pointer to last written Record: Binary nibble 1
06C4	F	Number of Records: Binary nibble 0 [Range 00-AF]
06C5	A	Number of Records: Binary nibble 1

HISTORY

4,3,2,1,0: Indoor and outdoor temperature

$T_{indoor} = (value \% 1000)/10 - 30 [C]$

$T_{outdoor} = (value - (value \% 1000))/10000 - 30 [C]$

Where % is the modulus operator.

9,8,7,6,5: Absolute Air Pressure and Indoor Humidity.

Pressure= 1000 + (value % 10000)/10. If pressure is greater than or equal to 1500 then you subtract 1000.

Indoor humidity =(value-(value % 10000))/10000

11,10: Outdoor Humidity in plain human readable BCD

14,13,12: Rain. (RAINCOUNTn)

The value is binary and steps 0.518 mm/step. Every period the current 12-bit rain count value (from 043A) is stored as history data.

Call the value for a specific history record 'RAINCOUNTn'.

The first time a program is started without a history data file but connected to the station, the program should fetch the total rain value from addresses 04D7-04D2. We can call this RAINref.

Then save the "Last rainfall total counter" value from 0440. Call this RAINCOUNTref. The program always saves just ONE value when it starts and this becomes a reference value for the entire time the program is running. From then on each new history record (past or future for the run of the program) is fetched by the program and the total rain for a single history record is calculated using RAINCOUNTn.

$RAIN_{total} = RAIN_{ref} + (RAINCOUNTn - RAINCOUNT_{ref}) * 0.518 [mm]$

If the total rainfall has been reset, or the remote sensor is reset (eg battery change) then the historical counter values will be out of sync and the program will need to handle accordingly.

<u>Address</u>	<u>Data Sample</u>	<u>Function</u>
17-16-15: Windspeed = value in binary / 10 [m/s]		
18: Wind direction = value * 22.5 degrees. North is 0 and degrees are clockwise on the circle.		
Record 0		
06C6	F	History data area starts here
06C7	C	
06C8	1	
06C9	F	
06CA	5	
13CD	0	
13CE	0	
13CF	0	