SUSA

Control & monitoring unit

MODBUS MANUAL

SUSA

INNEHÅLL

TRANSFER PROTOCOL	
Protocol version	RTU
Selecteable Modbus addresses	1-247
Selectable communication parameters	▪ 9600bps, 8 data bits, even parity, 1 stop bit ▪ 9600bps, 8 data bits, odd parity, 1 stop bit ▪ 9600bps, 8 data bits, none parity, 2 stop bits ▪ 19200bps, 8 data bits, even parity, 1 stop bit ▪ 19200bps, 8 data bits, odd parity, 1 stop bit ▪ 19200bps, 8 data bits, none parity, 2 stop bits

STANDARD SETUP

- Adress 10
- 9600bps
- 8 data bits
- no parity
- 2 stop bit

USED EXCEPTION CODES

- 0x01- Function code not supported
- 0x02- Illegal data address
- 0x03- Illegal data value (but not illegal register data!)
- 0x04- Unable to comply (e.g. invalid register data)

TERMINATION

To terminate the line, there is a built-in resistor which is activated by jumpering the pin marked **UA1**.

The pin is situated to the left of terminal 1 in the SUSA.

DAMPER

Function code: 0x03 or 0x04

BIT	READ DAMPER STATUS
15	(MSBit): MSBit of analog damper position
14	
13	(Analog damper position is available from KSUR slaves only!)
12	(Analog damper position format: 8-bit unsigned)
11	(Analog damper position unit: 0..100% opened)
10	
9	
8	LSBit of analog damper position
7	1 = Damper is busy with travel or damper test
6	Always 0, reserved for forced day operation request from damper
5	1 = Damper failed to reach OFF position in last damper test
4	1 = Damper failed to reach ON position in last damper test
3	1 = Damper is currently not in expected OFF position (error)
2	1 = Damper is currently not in expected ON position (error)
1	1 = Damper is currently in full OFF position (realtime monitoring)
0	(LSBbit): 1 = Damper is currently in full ON position (realtime monitoring)

DAMPER

Function code: 0x03 or 0x04

DAMPER GROUPS	MODBUS	
SUSA	DEC	HEX
1	0	0x0000
2	1	0x0001
Expansion	2	0x0002

DAMPER GROUPS	MODBUS	
Slave	DEC	HEX
1	3	0x0003
2	4	0x0004
3	5	0x0005
4	6	0x0006
5	7	0x0007
6	8	0x0008
7	9	0x0009
8	10	0x000A
9	11	0x000B
10	12	0x000C
11	13	0x000D
12	14	0x000E
13	15	0x000F
14	16	0x0010
15	17	0x0011
16	18	0x0012
17	19	0x0013
18	20	0x0014
19	21	0x0015
20	22	0x0016
21	23	0x0017
22	24	0x0018
23	25	0x0019
24	26	0x001A
25	27	0x001B
26	28	0x001C
27	29	0x001D
28	30	0x001E
29	31	0x001F
30	32	0x0020
31	33	0x0021
32	34	0x0022
33	35	0x0023
34	36	0x0024
35	37	0x0025
36	38	0x0026
37	39	0x0027
38	40	0x0028
39	41	0x0029
40	42	0x002A

DAMPER GROUPS	MODBUS	
Slave	DEC	HEX
41	43	0x002B
42	44	0x002C
43	45	0x002D
44	46	0x002E
45	47	0x002F
46	48	0x0030
47	49	0x0031
48	50	0x0032
49	51	0x0033
50	52	0x0034
51	53	0x0035
52	54	0x0036
53	55	0x0037
54	56	0x0038
55	57	0x0039
56	58	0x003A
57	59	0x003B
58	60	0x003C
59	61	0x003D
60	62	0x003E
61	63	0x003F
62	64	0x0040
63	65	0x0041
64	66	0x0042
65	67	0x0043
66	68	0x0044
67	69	0x0045
68	70	0x0046
69	71	0x0047
70	72	0x0048
71	73	0x0049
72	74	0x004A
73	75	0x004B
74	76	0x004C
75	77	0x004D
76	78	0x004E
77	79	0x004F
78	80	0x0050
79	81	0x0051
80	82	0x0052

DAMPER GROUPS	MODBUS	
Slave	DEC	HEX
81	83	0x0053
82	84	0x0054
83	85	0x0055
84	86	0x0056
85	87	0x0057
86	88	0x0058
87	89	0x0059
88	90	0x005A
89	91	0x005B
90	92	0x005C
91	93	0x005D
92	94	0x005E
93	95	0x005F
94	96	0x0060
95	97	0x0061
96	98	0x0062
97	99	0x0063
98	100	0x0064
99	101	0x0065
100	102	0x0066
101	103	0x0067
102	104	0x0068
103	105	0x0069
104	106	0x006A
105	107	0x006B
106	108	0x006C
107	109	0x006D
108	110	0x006E
109	111	0x006F
110	112	0x0070
111	113	0x0071
112	114	0x0072
113	115	0x0073
114	116	0x0074
115	117	0x0075
116	118	0x0076
117	119	0x0077
118	120	0x0078
119	121	0x0079
120	122	0x007A

Fortsättning på nästa sida

DAMPER

Function code: 0x03 or 0x04

DAMPER GROUPS	MODBUS	
Slave	DEC	HEX
121	123	0x007B
122	124	0x007C
123	125	0x007D
124	126	0x007E
125	127	0x007F
126	128	0x0080
127	129	0x0081
128	130	0x0082
129	131	0x0083
130	132	0x0084
131	133	0x0085
132	134	0x0086
133	135	0x0087
134	136	0x0088
135	137	0x0089
136	138	0x008A
137	139	0x008B
138	140	0x008C
139	141	0x008D
140	142	0x008E
141	143	0x008F
142	144	0x0090
143	145	0x0091
144	146	0x0092
145	147	0x0093
146	148	0x0094
147	149	0x0095
148	150	0x0096
149	151	0x0097
150	152	0x0098
151	153	0x0099
152	154	0x009A
153	155	0x009B
154	156	0x009C
155	157	0x009D
156	158	0x009E
157	159	0x009F
158	160	0x00A0
159	161	0x00A1
160	162	0x00A2

DAMPER GROUPS	MODBUS	
Slave	DEC	HEX
161	163	0x00A3
162	164	0x00A4
163	165	0x00A5
164	166	0x00A6
165	167	0x00A7
166	168	0x00A8
167	169	0x00A9
168	170	0x00AA
169	171	0x00AB
170	172	0x00AC
171	173	0x00AD
172	174	0x00AE
173	175	0x00AF
174	176	0x00B0
175	177	0x00B1
176	178	0x00B2
177	179	0x00B3
178	180	0x00B4
179	181	0x00B5
180	182	0x00B6
181	183	0x00B7
182	184	0x00B8
183	185	0x00B9
184	186	0x00BA
185	187	0x00BB
186	188	0x00BC
187	189	0x00BD
188	190	0x00BE
189	191	0x00BF
190	192	0x00C0
191	193	0x00C1
192	194	0x00C2
193	195	0x00C3
194	196	0x00C4
195	197	0x00C5
196	198	0x00C6
197	199	0x00C7
198	200	0x00C8
199	201	0x00C9
200	202	0x00CA

DAMPER GROUPS	MODBUS	
Slave	DEC	HEX
201	203	0x00CB
202	204	0x00CC
203	205	0x00CD
204	206	0x00CE
205	207	0x00CF
206	208	0x00D0
207	209	0x00D1
208	210	0x00D2
209	211	0x00D3
210	212	0x00D4
211	213	0x00D5
212	214	0x00D6
213	215	0x00D7
214	216	0x00D8
215	217	0x00D9
216	218	0x00DA
217	219	0x00DB
218	220	0x00DC
219	221	0x00DD
220	222	0x00DE
221	223	0x00DF
222	224	0x00E0
223	225	0x00E1
224	226	0x00E2
225	227	0x00E3
226	228	0x00E4
227	229	0x00E5
228	230	0x00E6
229	231	0x00E7
230	232	0x00E8
231	233	0x00E9
232	234	0x00EA
233	235	0x00EB
234	236	0x00EC
235	237	0x00ED
236	238	0x00EE
237	239	0x00EF
238	240	0x00F0
239	241	0x00F1
240	242	0x00F2

DAMPER GROUPS	MODBUS	
Slave	DEC	HEX
241	243	0x00F3
242	244	0x00F4
243	245	0x00F5
244	246	0x00F6
245	247	0x00F7
246	248	0x00F8
247	249	0x00F9
248	250	0x00FA
249	251	0x00FB
250	252	0x00FC
251	253	0x00FD
252	254	0x00FE
253	255	0x00FF
254	256	0x0100
255	257	0x0101
256	258	0x0102

DETECTOR

Function code: 0x03 or 0x04

BIT	READ DETECTOR STATUS
15	MSBit of detector current
14	
13	(Current format: 8-bit unsigned)
12	(Current unit: Milliamperes)
11	Bit 11:
10	Bit 10:
9	Bit 9:
8	LSBit of detector current
7	Always 0
6	Always 0
5	Always 0
4	Always 0
3	Always 0
2	Detector service request (excessive idle current for a long time)
1	Detector failure (no current at all or current too low)
0	(LSBit): Fire alarm

DETECTOR	MODBUS	
SUSA	DEC	HEX
0	512	0x0200
1	513	0x0201

DETECTOR

Function code: 0x03 or 0x04

DETECTOR	MODBUS	
Slave	DEC	HEX
1	514	0x0202
2	515	0x0203
3	516	0x0204
4	517	0x0205
5	518	0x0206
6	519	0x0207
7	520	0x0208
8	521	0x0209
9	522	0x020A
10	523	0x020B
11	524	0x020C
12	525	0x020D
13	526	0x020E
14	527	0x020F
15	528	0x0210
16	529	0x0211
17	530	0x0212
18	531	0x0213
19	532	0x0214
20	533	0x0215
21	534	0x0216
22	535	0x0217
23	536	0x0218
24	537	0x0219
25	538	0x021A
26	539	0x021B
27	540	0x021C
28	541	0x021D
29	542	0x021E
30	543	0x021F
31	544	0x0220
32	545	0x0221
33	546	0x0222
34	547	0x0223
35	548	0x0224
36	549	0x0225
37	550	0x0226
38	551	0x0227
39	552	0x0228
40	553	0x0229

DETECTOR	MODBUS	
Slave	DEC	HEX
41	554	0x022A
42	555	0x022B
43	556	0x022C
44	557	0x022D
45	558	0x022E
46	559	0x022F
47	560	0x0230
48	561	0x0231
49	562	0x0232
50	563	0x0233
51	564	0x0234
52	565	0x0235
53	566	0x0236
54	567	0x0237
55	568	0x0238
56	569	0x0239
57	570	0x023A
58	571	0x023B
59	572	0x023C
60	573	0x023D
61	574	0x023E
62	575	0x023F
63	576	0x0240
64	577	0x0241
65	578	0x0242
66	579	0x0243
67	580	0x0244
68	581	0x0245
69	582	0x0246
70	583	0x0247
71	584	0x0248
72	585	0x0249
73	586	0x024A
74	587	0x024B
75	588	0x024C
76	589	0x024D
77	590	0x024E
78	591	0x024F
79	592	0x0250
80	593	0x0251

DETECTOR	MODBUS	
Slave	DEC	HEX
81	594	0x0252
82	595	0x0253
83	596	0x0254
84	597	0x0255
85	598	0x0256
86	599	0x0257
87	600	0x0258
88	601	0x0259
89	602	0x025A
90	603	0x025B
91	604	0x025C
92	605	0x025D
93	606	0x025E
94	607	0x025F
95	608	0x0260
96	609	0x0261
97	610	0x0262
98	611	0x0263
99	612	0x0264
100	613	0x0265
101	614	0x0266
102	615	0x0267
103	616	0x0268
104	617	0x0269
105	618	0x026A
106	619	0x026B
107	620	0x026C
108	621	0x026D
109	622	0x026E
110	623	0x026F
111	624	0x0270
112	625	0x0271
113	626	0x0272
114	627	0x0273
115	628	0x0274
116	629	0x0275
117	630	0x0276
118	631	0x0277
119	632	0x0278
120	633	0x0279

DETECTOR	MODBUS	
Slave	DEC	HEX
121	634	0x027A
122	635	0x027B
123	636	0x027C
124	637	0x027D
125	638	0x027E
126	639	0x027F
127	640	0x0280
128	641	0x0281

Function code: 0x03 or 0x04

Read event log

The log can contain up to 99 records (logged events). The log is circular i.e. a new . event will overwrite the oldest record if the log is full, where 0x0300 corresponds to the oldest log record.

Empty log records are returned with all 8 bytes cleared (0x00). This can be used by the Modbus master to detect end-of-log when the log is not full. The record is empty if the month (or day) byte = 0x00.

Special requirements:

1. The starting adress must be a multiple of 4 e.g. 0x0300, 0x0304, 0x0308 etc.
2. The register count must also be a multiple of 4 e.g. 0x0004, 0x0008, 0x000C etc.

All values are unsigned 8-bit binary (not BCD).

Source identifiers:

0 = Local dampers

1 = Local detectors

2 = External dampers

3 = External detectors

4 = Bus communication

5 = System

6 = External digital inputs

Event identifiers:

If source identifier = 0 (local) or 2 (external) dampers:

0 = Damper (P+1) failed to reach OFF position in damper test

1 = Damper (P+1) failed to reach ON position in damper test

2 = Damper (P+1) failed to reach both OFF and ON position in damper test

3 = Damper (P+1) not in expected OFF position during normal operation

4 = Damper (P+1) not in expected ON position during normal operation

5 = Damper (P+1) appeared to be in both OFF and ON positions simultaneously

Where P is the Parameter byte, for example Parameter=6 means damper number 7.

If source identifier = 1 (local) or 3 (external) detectors:

0 = Detector (P+1) fire alarm

1 = Detector (P+1) failure

2 = Detector (P+1) servide request

Where P is the Parameter byte, for example

Parameter=6 means detector number 7.

If source identifier = 4, bus communication:

0 = Slave (P) communication error e.g. response timeout or bad data

Where P is the Parameter byte containing slave address, 0..31.

If source identifier = 5, system:

0 = External fire alarm input activated

1 = RTC backup battery is low and should be replaced

2 = RTC has stopped

3 = RTC has been set by the user via the LCD menu system

4 = RTC data error detected, the RTC must be set again for correct operation

5 = System started (cold start from CPU reset)

6 = User logged in to the LCD menu system

7 = Damper test completed successfully

8 = Damper test failed

9 = Exhaust fan test completed successfully

10 = Exhaust fan test failed due to lack of pressure rise

11 = Exhaust fan test inhibited due to stuck damper

12 = Reserved code for forced damper opening (not used)

13 = External AUX input fire alarm activated for FG2

The Parameter byte is currently not used for system loggings (always 0x00)

If source identifier = 6, External digital inputs:

An external digital input is logged ONLY when a 0-to-1 transition (low-to-high on KSUC) occur AND that particular input is configured for a special function i.e. to trigger fire alarm in function group(s) or to activate the B alarm relay.

The external digital input number is coded as a 16-bit number which is placed in the event identifier and the parameter bytes:

Event identifier byte = MSByte

Parameter byte = LSByte

The range of this 16-bit number is 0..511 which corresponds to external digital input numbers 1..512

EVENT LOG RECORDS

Function code: 0x03 or 0x04

MODBUS		MODBUS		MODBUS		MODBUS	
DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX
768	0x0300	808	0x0328	848	0x0350	888	0x0378
769	0x0301	809	0x0329	849	0x0351	889	0x0379
770	0x0302	810	0x032A	850	0x0352	890	0x037A
771	0x0303	811	0x032B	851	0x0353	891	0x037B
772	0x0304	812	0x032C	852	0x0354	892	0x037C
773	0x0305	813	0x032D	853	0x0355	893	0x037D
774	0x0306	814	0x032E	854	0x0356	894	0x037E
775	0x0307	815	0x032F	855	0x0357	895	0x037F
776	0x0308	816	0x0330	856	0x0358	896	0x0380
777	0x0309	817	0x0331	857	0x0359	897	0x0381
778	0x030A	818	0x0332	858	0x035A	898	0x0382
779	0x030B	819	0x0333	859	0x035B	899	0x0383
780	0x030C	820	0x0334	860	0x035C	900	0x0384
781	0x030D	821	0x0335	861	0x035D	901	0x0385
782	0x030E	822	0x0336	862	0x035E	902	0x0386
783	0x030F	823	0x0337	863	0x035F	903	0x0387
784	0x0310	824	0x0338	864	0x0360	904	0x0388
785	0x0311	825	0x0339	865	0x0361	905	0x0389
786	0x0312	826	0x033A	866	0x0362	906	0x038A
787	0x0313	827	0x033B	867	0x0363	907	0x038B
788	0x0314	828	0x033C	868	0x0364	908	0x038C
789	0x0315	829	0x033D	869	0x0365	909	0x038D
790	0x0316	830	0x033E	870	0x0366	910	0x038E
791	0x0317	831	0x033F	871	0x0367	911	0x038F
792	0x0318	832	0x0340	872	0x0368	912	0x0390
793	0x0319	833	0x0341	873	0x0369	913	0x0391
794	0x031A	834	0x0342	874	0x036A	914	0x0392
795	0x031B	835	0x0343	875	0x036B	915	0x0393
796	0x031C	836	0x0344	876	0x036C	916	0x0394
797	0x031D	837	0x0345	877	0x036D	917	0x0395
798	0x031E	838	0x0346	878	0x036E	918	0x0396
799	0x031F	839	0x0347	879	0x036F	919	0x0397
800	0x0320	840	0x0348	880	0x0370	920	0x0398
801	0x0321	841	0x0349	881	0x0371	921	0x0399
802	0x0322	842	0x034A	882	0x0372	922	0x039A
803	0x0323	843	0x034B	883	0x0373	923	0x039B
804	0x0324	844	0x034C	884	0x0374	924	0x039C
805	0x0325	845	0x034D	885	0x0375	925	0x039D
806	0x0326	846	0x034E	886	0x0376	926	0x039E
807	0x0327	847	0x034F	887	0x0377	927	0x039F

EVENT LOG RECORDS

Function code: 0x03 or 0x04

MODBUS		MODBUS		MODBUS		MODBUS	
DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX
928	0x03A0	968	0x03C8	1008	0x03F0	1048	0x0418
929	0x03A1	969	0x03C9	1009	0x03F1	1049	0x0419
930	0x03A2	970	0x03CA	1010	0x03F2	1050	0x041A
931	0x03A3	971	0x03CB	1011	0x03F3	1051	0x041B
932	0x03A4	972	0x03CC	1012	0x03F4	1052	0x041C
933	0x03A5	973	0x03CD	1013	0x03F5	1053	0x041D
934	0x03A6	974	0x03CE	1014	0x03F6	1054	0x041E
935	0x03A7	975	0x03CF	1015	0x03F7	1055	0x041F
936	0x03A8	976	0x03D0	1016	0x03F8	1056	0x0420
937	0x03A9	977	0x03D1	1017	0x03F9	1057	0x0421
938	0x03AA	978	0x03D2	1018	0x03FA	1058	0x0422
939	0x03AB	979	0x03D3	1019	0x03FB	1059	0x0423
940	0x03AC	980	0x03D4	1020	0x03FC	1060	0x0424
941	0x03AD	981	0x03D5	1021	0x03FD	1061	0x0425
942	0x03AE	982	0x03D6	1022	0x03FE	1062	0x0426
943	0x03AF	983	0x03D7	1023	0x03FF	1063	0x0427
944	0x03B0	984	0x03D8	1024	0x0400	1064	0x0428
945	0x03B1	985	0x03D9	1025	0x0401	1065	0x0429
946	0x03B2	986	0x03DA	1026	0x0402	1066	0x042A
947	0x03B3	987	0x03DB	1027	0x0403	1067	0x042B
948	0x03B4	988	0x03DC	1028	0x0404	1068	0x042C
949	0x03B5	989	0x03DD	1029	0x0405	1069	0x042D
950	0x03B6	990	0x03DE	1030	0x0406	1070	0x042E
951	0x03B7	991	0x03DF	1031	0x0407	1071	0x042F
952	0x03B8	992	0x03E0	1032	0x0408	1072	0x0430
953	0x03B9	993	0x03E1	1033	0x0409	1073	0x0431
954	0x03BA	994	0x03E2	1034	0x040A	1074	0x0432
955	0x03BB	995	0x03E3	1035	0x040B	1075	0x0433
956	0x03BC	996	0x03E4	1036	0x040C	1076	0x0434
957	0x03BD	997	0x03E5	1037	0x040D	1077	0x0435
958	0x03BE	998	0x03E6	1038	0x040E	1078	0x0436
959	0x03BF	999	0x03E7	1039	0x040F	1079	0x0437
960	0x03C0	1000	0x03E8	1040	0x0410	1080	0x0438
961	0x03C1	1001	0x03E9	1041	0x0411	1081	0x0439
962	0x03C2	1002	0x03EA	1042	0x0412	1082	0x043A
963	0x03C3	1003	0x03EB	1043	0x0413	1083	0x043B
964	0x03C4	1004	0x03EC	1044	0x0414	1084	0x043C
965	0x03C5	1005	0x03ED	1045	0x0415	1085	0x043D
966	0x03C6	1006	0x03EE	1046	0x0416	1086	0x043E
967	0x03C7	1007	0x03EF	1047	0x0417	1087	0x043F

EVENT LOG RECORDS

Function code: 0x03 or 0x04

MODBUS	
DEC	HEX
1088	0x0440
1089	0x0441
1090	0x0442
1091	0x0443
1092	0x0444
1093	0x0445
1094	0x0446
1095	0x0447
1096	0x0448
1097	0x0449
1098	0x044A
1099	0x044B
1100	0x044C
1101	0x044D
1102	0x044E
1103	0x044F
1104	0x0450
1105	0x0451
1106	0x0452
1107	0x0453

MODBUS	
DEC	HEX
1108	0x0454
1109	0x0455
1110	0x0456
1111	0x0457
1112	0x0458
1113	0x0459
1114	0x045A
1115	0x045B
1116	0x045C
1117	0x045D
1118	0x045E
1119	0x045F
1120	0x0460
1121	0x0461
1122	0x0462
1123	0x0463
1124	0x0464
1125	0x0465
1126	0x0466
1127	0x0467

MODBUS	
DEC	HEX
1128	0x0468
1129	0x0469
1130	0x046A
1131	0x046B
1132	0x046C
1133	0x046D
1134	0x046E
1135	0x046F
1136	0x0470
1137	0x0471
1138	0x0472
1139	0x0473
1140	0x0474
1141	0x0475
1142	0x0476
1143	0x0477
1144	0x0478
1145	0x0479
1146	0x047A
1147	0x047B

MODBUS	
DEC	HEX
1148	0x047C
1149	0x047D
1150	0x047E
1151	0x047F
1152	0x0480
1153	0x0481
1154	0x0482
1155	0x0483
1156	0x0484
1157	0x0485
1158	0x0486
1159	0x0487
1160	0x0488
1161	0x0489
1162	0x048A
1163	0x048B

REGISTER	READ EVENT LOG DATA MAPPING OF THE 4-REGISTER BLOCK:
0	MsByte = Timestamp year, 0..99 (decimal)
0	LsByte = Timestamp month, 1..12 (decimal)
1	MsByte = Timestamp day, 1..31 (decimal)
1	LsByte = Timestamp hour, 0..23 (decimal)
2	MsByte = Timestamp minute, 0..59 (decimal)
2	LsByte = Source identifier, see below
3	MsByte = Event identifier, see below
3	LsByte = Parameter, see below

READ SINGLE STATUS FLAGS

Function code: 0x03 or 0x04

MODBUS DEC	MODBUS HEX	Read single status flags from separate registers
1280	0x0500	Fire alarm relay ouput is activated
1281	0x0501	Fault alarm relay ouput is activated
1282	0x0502	Fan 1 relay ouput is activated
1283	0x0503	Fan 2 relay ouput is activated
1284	0x0504	Hardware nighttime input is activated
1285	0x0505	Hardware external fire alarm input is activated
1286	0x0506	Hardware pressure sensor input is activated
1287	0x0507	Hardware auxilliary input (AUX) is activated
1288	0x0508	Communication error on damper bus (latching)
1289	0x0509	Exhaust fan test is in progress in FG1 (function group 1)
1290	0x050A	Exhaust fan test is in progress in FG2 (function group 2)
1291	0x050B	Damper test is in progress in FG1 (function group 1)
1292	0x050C	Damper test is in progress in FG2 (function group 2)
1293	0x050D	Exhaust fan test pending but still blocked by active AUX input
1294	0x050E	Damper test pending but still blocked by active AUX input

READ ALL STATUS FLAGS

Function code: 0x03 or 0x04

MODBUS DEC	MODBUS HEX	Read all status flags as a single register	
1296	0x0510	Bit 15	(MSBit): Always 0
		Bit 14	1 = Damper test pending but still blocked by active AUX input
		Bit 13	1 = Exhaust fan test pending but still blocked by active AUX input
		Bit 12	1 = Damper test is in progress in FG2 (function group 2)
		Bit 11	1 = Damper test is in progress in FG1 (function group 1)
		Bit 10	1 = Exhaust fan test is in progress in FG2 (function group 2)
		Bit 9	1 = Exhaust fan test is in progress in FG1 (function group 1)
		Bit 8	1 = Communication error on damper bus (latching)
		Bit 7	1 = Hardware auxilliary input (AUX) is activated
		Bit 6	1 = Hardware pressure sensor input is activated
		Bit 5	1 = Hardware external fire alarm input is activated
		Bit 4	1 = Hardware nighttime input is activated
		Bit 3	1 = Fan 2 relay ouput is activated
		Bit 2	1 = Fan 1 relay ouput is activated
		Bit 1	1 = Fault alarm relay ouput is activated
		Bit 0	(LSBbit): 1 = Fire alarm relay ouput is activated

READBACK OF WRITABLE REGISTERS

Function code: 0x03 or 0x04

MODBUS		Readback of writable registers for verification
DEC	HEX	
4096	0x1000	Damper test in progress or pending (Note 1)
4097	0x1001	Exhaust fan test in progress or pending (Note 1)
4098	0x1002	An alarm reset was recently written to this register (Note 2)
4099	0x1003	The event log is empty (Note 3)
4000	0x1004	0x0000..0x0002 = The last data written to this address
4101	0x1004	0x0000..0x0002 = The last data written to this address

Note 1:

These bits indicate that a damper test or exhaust fan test is either already in progress or is pending i.e. waiting to start as soon as the test blocking signal on the hardware AUX input disappears.

The registers will be cleared to 0x0000 as soon as the corresponding test is finished. The main purpose of these registers is to provide a feedback to verify that writes to the registers were successful.

Note 2:

Alarm reset is a transient event, not a ”setting”. After a successful write of 0x0001 to this register, it will return 0x0001 for 30 seconds after the write and then fall back to 0x0000.

Note 3:

A read from this register returns the ”log empty” status regardless if the last write to this register was successful or not.

READ EXTERNAL DIGITAL INPUT STA

In case of KSUC input modules, the register bits follow the the physical KSUC inputs:
KSUC input low (grounded, green LED on) => corresponding register bit = 0
KSUC input high (open, green LED off) => corresponding register bit = 1

Function code: 0x03 or 0x04

MODBUS		Digital In
DEC	HEX	DI
4352	0	1
4353	0x1101	2
4354	0x1102	3
4355	0x1103	4
4356	0x1104	5
4357	0x1105	6
4358	0x1106	7
4359	0x1107	8
4360	0x1108	9
4361	0x1109	10
4362	0x110A	11
4363	0x110B	12
4364	0x110C	13
4365	0x110D	14
4366	0x110E	15
4367	0x110F	16
4368	0x1110	497
4369	0x1111	498
4370	0x1112	499
4371	0x1113	500
4372	0x1114	501
4373	0x1115	502
4374	0x1116	503
4375	0x1117	504
4376	0x1118	505
4377	0x1119	506
4378	0x111A	507
4379	0x111B	508
4380	0x111C	509
4381	0x111D	510
4382	0x111E	511
4383	0x111F	512

BIT	READ EXTERNAL DIGITAL INPUT STATUS (E.G. KSUC INPUTS)
15	MSBit
14	
13	
12	
11	
10	
9	
8	
7	
6	
5	
4	
3	
2	
1	
0	LSBit

READ RTC DATE AND TIME

Function code: 0x03 or 0x04

MODBUS	
DEC	HEX
1536	0x0600
1537	0x0601
1538	0x0602
1539	0x0603

REGISTER	READ RTC DATE AND TIME DATA MAPPING OF THE 4-REGISTER BLOCK:
0	MsByte = Year MSByte, year = 2015..4095 (decimal)
0	LsByte = Year LSByte
1	MsByte = Month, 1..12 (decimal)
1	LsByte = Day, 1..31 (decimal)
2	MsByte = Hour, 0..23 (decimal)
2	LsByte = Minute, 0..59 (decimal)
3	MsByte = Second, 0..59 (decimal)
3	LsByte = Day of week, 0..6, 0 = Sunday, 1 = Monday etc.

Special requirements:

1. The starting adress **must** be 0x0300
2. The register count **must** be 0x0004

All values are unsigned binary (not BCD).

Year is a 16-bit binary value, all other values are 8-bit binary.

SET RTC DATE AND TIME

Function code: 0x10 (16 decimal)

MODBUS	
DEC	HEX
1536	0x0600
1537	0x0601
1538	0x0602
1539	0x0603

REGISTER	SET RTC DATE AND TIME DATA MAPPING OF THE 4-REGISTER BLOCK:
0	MsByte = Year MSByte, year = 2015..4095 (decimal)
0	LsByte = Year LSByte
1	MsByte = Month, 1..12 (decimal)
1	LsByte = Day, 1..31 (decimal)
2	MsByte = Hour, 0..23 (decimal)
2	LsByte = Minute, 0..59 (decimal)
3	MsByte = Second, 0..59 (decimal)
3	LsByte = Day of week, 0..6, 0 = Sunday, 1 = Monday etc.

Special requirements:

1. The starting adress **must** be 0x0300
2. The register count **must** be 0x0004

All values are unsigned binary (not BCD).

Year is a 16-bit binary value, all other values are 8-bit binary.

WRITE TRIGGERS AND DAY NIGHT CO

Function code: 0x06 or 0x10 (16 decimal)

MODBUS		Write triggers and day/night control
DEC	HEX	
4096	0x1000	Write 0x0001 to trigger start of damper test
4097	0x1001	Write 0x0001 to trigger start of exhaust fan test
4098	0x1002	Write 0x0001 to reset alarms
4099	0x1003	Write 0x0001 to erase the event log
4100	0x1004	Force day or night operation:
		Write 0x0000 for local day/night control via hardware input
		Write 0x0001 to force night operation
		Write 0x0002 to force day operation
4101	0x1005	Write 0x2BAD to trigger a total system restart (CPU reset)

Note:

If function code 0x10 is used to write two or more of theses registers and address or register data error(s) occur with some of the register(s), the returned exception code will be that of the last failing register write i.e. some register writes may execute successfully while other writes fail.

Function code: 0x06 or 0x10 (16 decimal)

DIAGNOSTICS

Function code: 0x08

Special functions Request	Diagnostics
0x08	Function code
0x00	Sub-function MSByte
0x00	Sub-function LSByte
0x??	Any even number (0, 2, 4..250) of data bytes

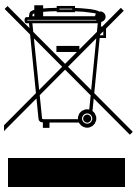
Response:

Exactly the same as the request message.

READ PRODUCT INFORMATION

Function code: 0x2B (43 decimal)

Special functions Request	Read product information
0x2B	Function code
0x0E	MEI type = Read device identification
0x01	Read device ID code = Basic device ID readout with stream access
0x00	Starting object ID, must be 0x00 here (VendorName)
Response	
0x2B	Function code (same as in request)
0x0E	MEI type (same as in request)
0x01	Read device ID code (same as in request)
0x01	Conformity level = Basic ID with stream access only
0x00	More follows = FALSE (all requested data is contained in this message)
0x00	Next object ID = 0x00 because ”More follows” = FALSE above
0x03	Number of objects = 3
0x00	Object ID 0 = VendorName
0x0D	Object length = 13 characters (in this example)
”On Control AB” VendorName ASCII string, here 13 characters/bytes (in this example)	
0x01	Object ID 1 = ProductCode
0x04	Object length = 4 characters (in this example)
”SUSA” ProductCode ASCII string, here 4 characters/bytes (in this example)	
0x02	Object ID 2 = MajorMinorRevision
0x05	Object length = 5 characters (in this example)
”v1.03” MajorMinorRevision ASCII string here 5 characters/bytes (in this example)	



Bortskaffande av uttjänta elektriska och elektroniska apparater
(gäller för EU samt andra europeiska länder med särskilda insamlingssystem)

Om produkten eller dess förpackning är försedd med denna symbol ska den inte hanteras som hushållsavfall. Den ska i stället lämnas till lämpligt insamlingsställe för återvinning av elektriska och elektroniska apparater. Genom att svara för att denna produkt omhändertas på rätt sätt hjälper du till att förhindra den negativa påverkan på miljö och människors hälsa, som annars skulle kunna bli en följd av olämplig avfallshantering av denna produkt. Materialåtervinning bidrar till hushållningen av naturresurser. För att få närmare information om återvinning av denna produkt, kan du kontakta din kommun, ditt renhållningsföretag, eller den återförsäljare du köpt produkten av.

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