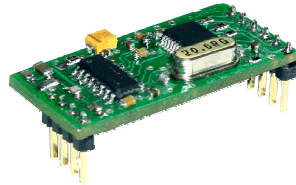




Technical Data Sheet

Q5M-005

Q5M005-DTRdoc-01.06
In reference to Q5M005-c-02.00



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Introduction

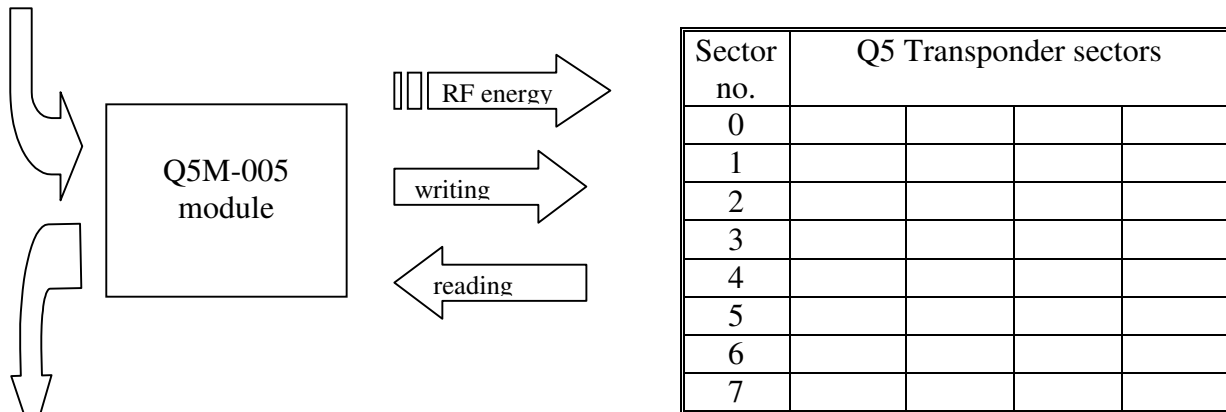
Module Q5M-005 operates on principle of the contactless information writing and reading from and to the transponder Q5 (RFID). The module can read data from Unique transponders as well. Data are transmitted via RS-232 interface compatible with TTL voltage level.

The principle of operation:

query from (master unit- host) - (module) action - (module) response.

The query is sent to the module Q5M:

module address	frame length	command	data	CRCH,CRCL
XX	XX	XX	XX XX XX	XX XX

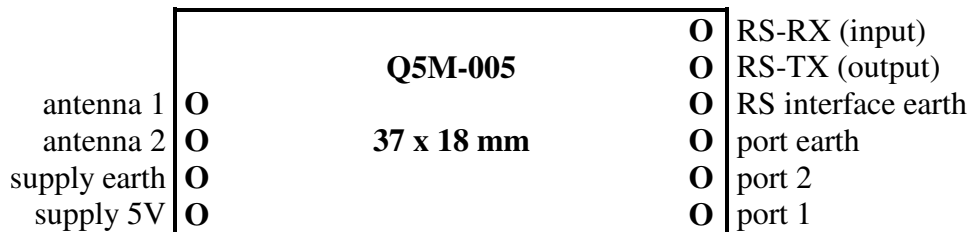


The response is:

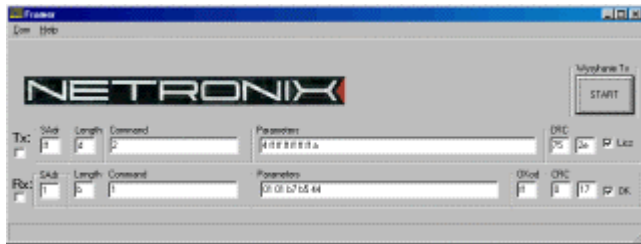
Module address	frame length	response	data	operation code	CRCH,CRCL
XX	XX	XX	XX XX	XX	XX XX

The module is equipped with two 1-bit user ports, which can be used for reading and writing. Connect an air coil antenna to the Q5M-005. The antenna will produce an electromagnetic field and supply a transponder located in the field.

Pin diagram



drwg.: module pins – element side view



Module can be tested with FRAMER software tool, which makes work with frames easier.

Q5 transponder overview

Q5 transponder comprises eight sectors, of which one is reserved as a configuration registry. Remained sectors are used by user and can be written in and read out in case of lock lack „Lock” (L) of given sector. If such lock has been set for given sector before, the only possibility is to read out the sector.

In case of configuration which protects transponder with password, the password is saved in sector no. 7.

Sector no.	Q5 transponder sectors				
0	32 configuration bits				L
1	8b	8b	8b	8b	L
2	8b	8b	8b	8b	L
3	8b	8b	8b	8b	L
4	8b	8b	8b	8b	L
5	8b	8b	8b	8b	L
6	8b	8b	8b	8b	L
7	possible password				L

32 configuration bits+ L

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	12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If AOR=0 transponder sends data as the first one. It takes place in case of configuration conformed to Unique.

Use PWD – protects the transponder with a password saved in block no. 7. If PWD=1 the transponder will require functions which use the password for writing/reading to/from the sector.

If a user needs to use the Q5 transponder Q5, as a Unique, and additionally save password protected data, he should format the transponder with AOR=0 PWD=1.

PSK carrier frequency - Q5M-005 does not use PSK modulation. f0 f1 are any.

Invers data output - determines logic inversion of data sent – for Q5miko it should be = 0.

Modulation – modulation type of data send by transponder. During data receiving Q5M-005 decodes them conformed to Manchester (and to Unique too), it means that transponder should be formatted as a Manchester, m2 m1 m0 = 0 0 0.

Max Block – determines blocks number sent by transponder. When transponder cross the antenna area (and in case of AOR=0), it begins automatically to send the data beginning from block no.1 to a block determined by Max Block. In case of the Unique, Max Block=2.

Lock – decides if given sector does not change. Any time the sector has been written with parameter Lock=1, it wouldn't be possible to re-write the sector any longer.

Command overview:

Lock- byte which decide if card can be re-written.

When Lock = 1 the data cannot be re-written, in other case the data existing on card can be re-written.

SectorNr – value = (0...7)

OperationCode – informs about correctness of command execution by module Q5M-005.

(During sector reading process the number of received bits is checked but not their correctness. User must secure the data for instance for CRC writing in the sector or in a part of it.)

High level commands:

By means of high level commands it is possible to carry on full communication process with Q5 transponder. It means, that field switching on, normal process and field switching off is executed automatically. Normal process can consist of many write and/or many read out operations. Using many high level commands, we get longer sector access time, but we have an advantage we don't have to generate many write/read-outs in case of complex functions.

Writing the Q5 transponder as a Unique

Name of command – query	Command code	Parameters
C_HL_UniqueWrite	0x00	ID1...5,Lock

ID1...5 – ID number which we are to program on Q5 card to make it to simulate UNIQUE card.

Name of command – response	Response code	Parameters
A_HL_UniqueWrite	0x01	OperationCode

OperationCode – always is 0xff

Reading out the Unique transponder

Name of command – query	Command code	Parameters
C_HL_UniqueRead	0x02	-

Name of command – response	Response code	Parameters
A_HL_UniqueRead	0x03	ID1...5, OperationCode

ID1...5 – ID-UNIQUE number which is programmed for Q5 or UNIQUE transponder.

OperationCode – when = 0xff-read-out is correct (Unique control sum has been checked).

Writing the transponder sector

Name of command – query	Command code	Parameters
C_HL_Q5SectorWrite	0x10	Data1...4, SectorNo, Lock

Data1...4 - data we are to write in the sector

SectorNo –sector of destination

Name of command – response	Response code	Parameters
A_HL_Q5SectorWrite	0x11	OperationCode

OperationCode – always is 0xff

Reading out the transporter sector

Name of command – response	Response code	Parameters
C_HL_Q5SectorRead	0x12	SectorNo

SectorNo – source sector

Name of command – response	Response code	Parameters
A_HL_Q5SectorRead	0x13	Data1...4, OperationCode

Data1...4 – data from sector

OperationCode - 0xff - read-out is correct

Writing the sector password protected

Name of command – query	Command code	Parameters
C_HL_WithPasswordQ5SectorWrite	0x20	Data1...4, SectorNo, Password1...4, Lock

Data1...4 – written data

SectorNo – sector of destination

Password1...4 - password

Name of command – response	Response code	Parameters
A_HL_WithPasswordQ5SectorWrite	0x21	OperationCode

OperationCode – always is 0xff

Reading out the transponder sector password protected

Name of command – query	Command code	Parameters
C_HL_WithPasswordQ5SectorRead	0x22	SectorNo, Password1...4

SectorNo – sector of destination

Password1...4 - password

Name of command – response	Response code	Parameters
A_HL_WithPasswordQ5SectorRead	0x23	Data1...4, OperationCode

Data1...4 – red out data from the sector

OperationCode - 0xff - read-out is correct

Low level commands

Low level commands can be used in free strings without frequently on/off field switching.

Switching on the antenna electromagnetic field

Name of command – query	Command code	Parameters
C_TurnOnAntennaPower	0x30	-

Name of command – response	Response code	Parameters
A_TurnOnAntennaPower	0x31	OperationCode

OperationCode – is always 0xff

Switching off the antenna electromagnetic field

Name of command – query	Command code	Parameters
C_TurnOffAntennaPower	0x32	-

Name of command – response	Response code	Parameters
A_TurnOffAntennaPower	0x33	OperationCode

OperationCode – is always 0xff

Writing the transponder sector

Name of command – query	Command code	Parameters
C_Q5SectorWrite	0x40	Data1...4, SectorNo, Lock

Data1...4 - data we are to write in sector

SectorNo – sector of destination

Name of command – response	Response code	Parameters
A_Q5SectorWrite	0x41	OperationCode

OperationCode – is always 0xff

Reading out the transponder sector

Name of command – query	Command code	Parameters
C_Q5SectorRead	0x42	SectorNo

SectorNo – source sector

Name of command – response	Response code	Parameters
A_Q5SectorRead	0x43	Data1...4, OperationCode

Data1...4 – sector data

OperationCode - 0xff – the read-out is correct

Writing the transponder sector password protected

Name of command – query	Command code	Parameters
C_WithPasswordQ5SectorWrite	0x50	Data1...4, SectorNo, Password1...4, Lock

Data1...4 – written data

SectorNo – sector of destination

Password1...4 - password

Name of command – response	Response code	Parameters
A_WithPasswordQ5SectorWrite	0x51	OperationCode

OperationCode – always is 0xff

Reading out the transponder sector password protected

Name of command – query	Command code	Parameters
C_WithPasswordQ5SectorRead	0x52	SectorNo, Password1...4

SectorNo – source sector

Password1...4 - password

Name of command – response	Response code	Parameters
A_WithPasswordQ5SectorRead	0x53	Data1...4, OperationCode

Data1...4 – red-out sector data

OperationCode - 0xff- read-out is correct

Writing the Q5 transponder as a Unique

Name of command – query	Command code	Parameters
C_UniqueWrite	0x60	ID1..5,Lock

Where: ID1..5 –ID number we are to program on card, to make it to simulate UNIQUE card

Name of command – response	Response code	Parameters
A_UniqueWrite	0x61	OperationCode

Where: OperationCode – always is 0xff

Reading out Unique transponder

Name of command – query	Command code	Parameters
C_UniqueRead	0x62	-

Name of command – response	Response code	Parameters
A_UniqueRead	0x63	ID1..5, OperationCode

ID1..5 – ID number which has been programmed on the UNIQUE card

OperationCode - 0xff - read-out is correct (Unique control sum has been checked)

Additional commands**Setting the gain of receiving path for the transponder signals**

Name of command – query	Command code	Parameters
C_GainSet	0xa0	NewGain

NewGain – sensitivity of receiver circuit which reads data out the card (0..3)

This value is being written in non- violated memory

Name of command – response	Response code	Parameters
A_GainSet	0xa1	OperationCode

OperationCode – 0xff - operation is correct

0x20 - beyond parameter range

Setting the address of Q5M-005 module RSXX bus

Name of command – query	Command code	Parameters
C_SlaveAddressSet	0xa2	NewSlaveAddress

NewSlaveAddress – new module address in system = (1..0xfe)

This value is being written in non- violated memory

Name of command – response	Response code	Parameters
A_SlaveAddressSet	0xa3	OperationCode

OperationCode – 0xff - operation is correct

0x20 - beyond parameter range

Writing bit to the I/O port

Name of command – query	Command code	Parameters
C_WritePort	0x70	PortNr, Bit

PortNr=1,2

Bit=0,1

Name of command – response	Response code	Parameters
A_WritePort	0x71	OperationCode

OperationCode – always is 0xff

This operation sets given port as the “output” (low impedance) automatically.

After switching the power on, both of the ports operate in “input” mode (high impedance).

Reading out bit from the I/O port

Name of command – query	Command code	Parameters
C_ReadPort	0x72	PortNr

PortNr=1,2

Name of command – response	Response code	Parameters
A_ReadPort	0x73	Bit, OperationCode

Bit=00 for read-out value L

=01 for read-out value H

OperationCode –always is 0xff

This operation sets given port as the “input” (high impedance) automatically.

After switching the power on, both of the ports operate in the “input” mode.

Reading out the software version of Q5M-005 module

Name of command – query	Command code	Parameters
C_SoftwareVersion	0xfe	-

Name of command – response	Response code	Parameters
A_SoftwareVersion	0xff	Dane1..n, OperationCode

Dane1..n – software version written in ASCII code

OperationCode –always is 0xff

Calculation the CRC value

The CRC value is calculated from equation $x^{16}+x^{12}+x^5+1$ with initial value equal to 0x0000. The CRC value is calculated in virtue of all the bytes except of CRCH and CRCL. Example of calculation of CRC value, written in C language:

```
void LiczCRC2(unsigned char *ZAdr, unsigned short *DoAdr, unsigned char Ile)
{
int   i,NrBajtu;
unsigned short C;
    *DoAdr=0;
    for (NrBajtu=1;NrBajtu<=Ile;NrBajtu++,ZAdr++)
    {
        C=((*DoAdr>>8)^*ZAdr)<<8;
        for (i=0;i<8;i++)
            if (C&0x8000) C=(C<<1)^0x1021;
            else C=C<<1;
        *DoAdr=C^(*DoAdr<<8);
    }
}
```

where:

- *Zadr - is the data first byte flag
- Ile - informs how many data bytes will be used for calculation
- *DoAdr - is the flag for the calculated CRC value

Examples of Q5 transponder operation with the help of Q5M-005

Foundations:

- The messages are sent as broadcast (to the all modules in the network, AdresModu=ff).

Typical command frame:

module address	frame length	command	data	CRCH,CRCL
ff	XX	XX	XX XX XX XX	XX XX

- All write commands are executed as reversible ones (Lock=00).

Typical command frame:

module address	frame length	command	data	CRCH,CRCL
ff	XX	XX	XX_XX_XX_00	XX XX

- Assume that, it has been assigned before to the reader an address 01 using the C_SlaveAddressSet function. It means that the reader with the address 01 will respond.

Typical response frame:

module address	frame length	response	data	operation code	CRCH,CRCL
01	XX	XX	XX	XX	XX XX

High level function operation

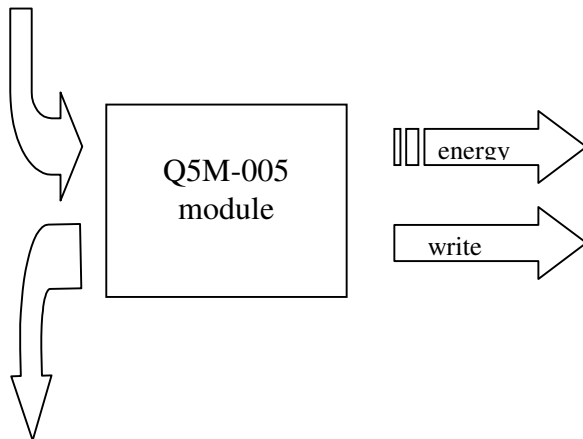
Example 1 Unique write

We are to write the Q5 transponder as a Unique transponder with number e1 e2 e3 e4 e5 and to check the correctness of that write.

For this purpose we can use two high level functions C_HL_UniqueWrite and C_HL_UniqueRead.

We send the string to the Q5M-005 module:

module address	frame length	command	data	CRCH,CRCL
ff	0b	00	e1 e2 e3 e4 e5 00	67 05



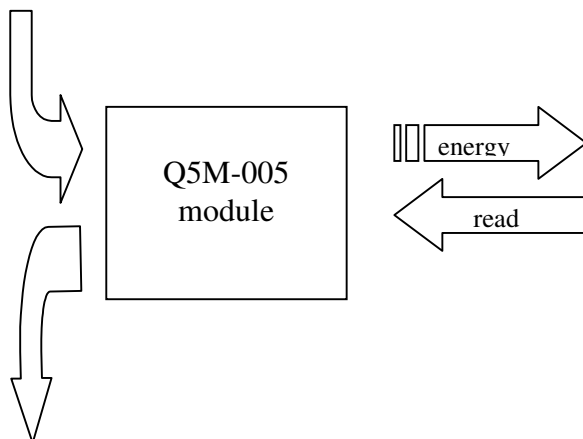
sector no.	Q5 transponder sectors			
0	60	01	F0	04
1	e1 e2 e3 e4 e5 including Unique			
2	conformed control sums			
3				
4				
5				
6				
7				

We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	0b	01	-	ff	e9 d5

To verify reading correctness of the sent string:

module address	frame length	command	data	CRCH,CRCL
ff	05	02	-	10 d4



Sector no.	Q5 transponder sectors			
0	60	01	F0	04
1	e1 e2 e3 e4 e5 including Unique			
2	conformed control sums			
3				
4				
5				
6				
7				

We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	0b	03	e1 e2 e3 e4 e5	ff	c6 69

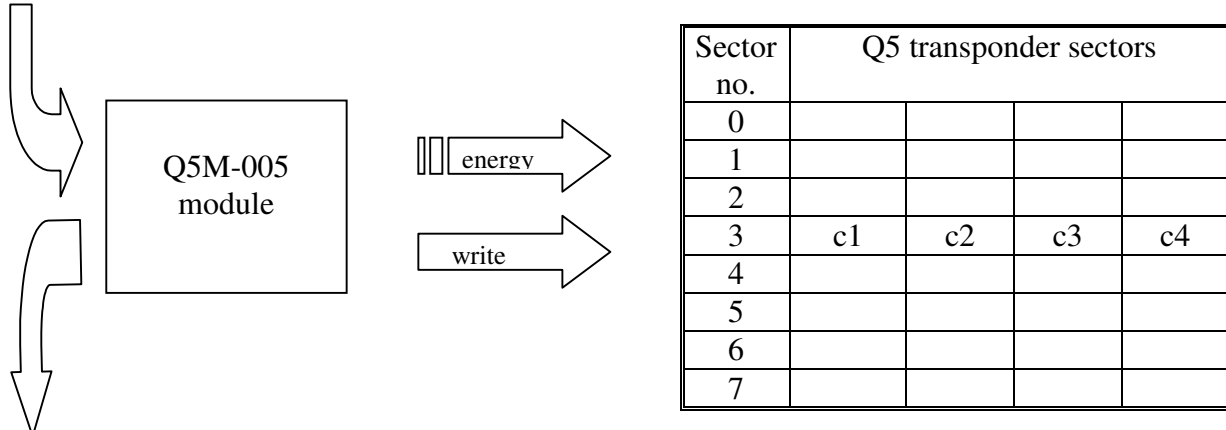
The read-out number is the same as write one. It means that writing process is correct.

Example 2 Sector write

We are to write the sector no. 3 as a c1 c2 c3 c4 and check if that write process is correct. For this purpose we can use two high level functions `_HL_Q5SectorWrite` and `C_HL_Q5SectorRead`.

We send the string to Q5M-005 module:

module address	frame length	command	data	CRCH,CRCL
ff	0b	10	c1 c2 c3 c4 03 00	66 5e

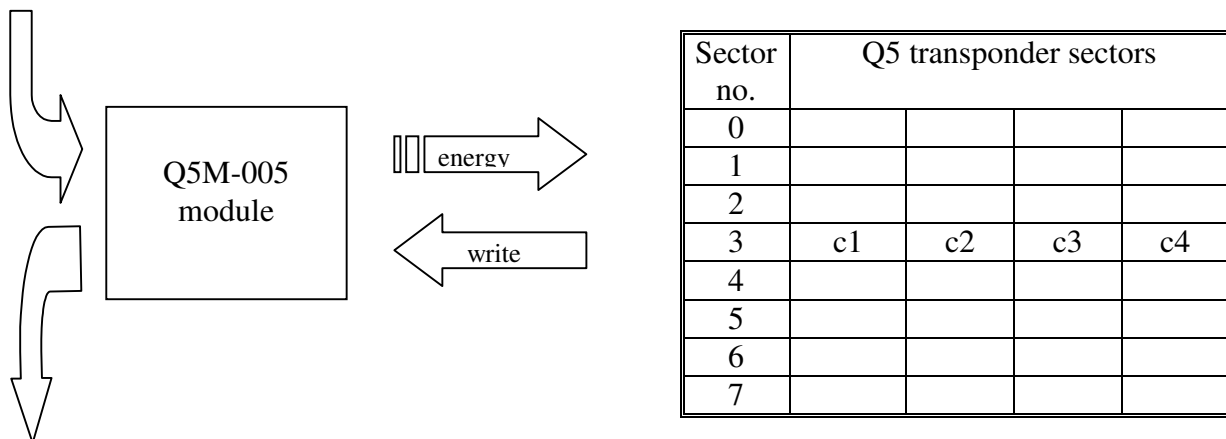


We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	06	11	-	ff	ea a6

To verify reading correctness of the sent string:

module address	frame length	command	data	CRCH,CRCL
ff	06	12	03	ac 71



We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	0a	13	c1 c2 c3 c4	ff	1c 1b

The read-out number is the same as write one. It means that writing process is correct.

Example 3 Password protection

We are to protect Q5 transponder with password.

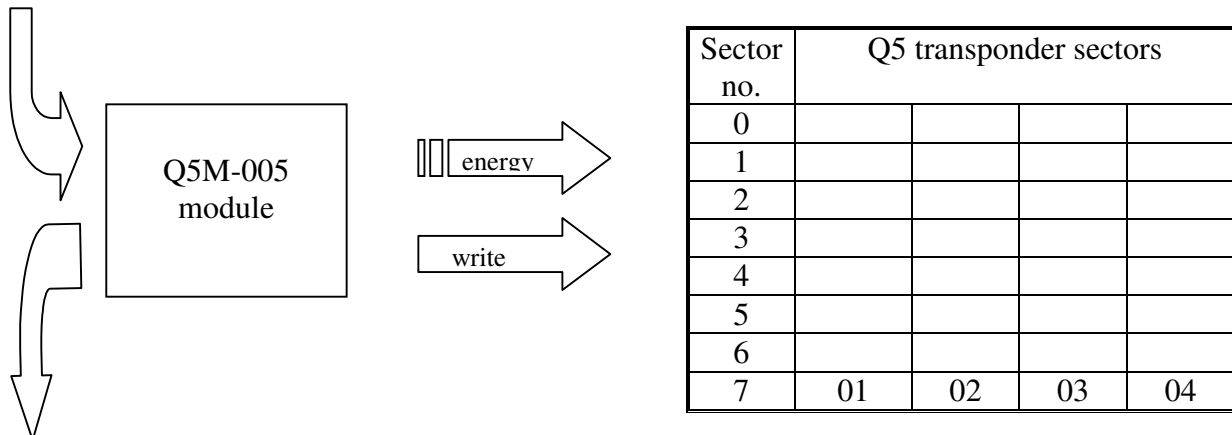
For this purpose configure the sector no. 0 properly.

To the transponder would require the password, the value of 60 01 fc 04 must have been written to the sector no. 0. But remember to set the password saved in the sector no. 7 first.

Let our password be the 01 02 03 04.

We send the setting password string to the Q5M-005 module:

module address	frame length	command	data	CRCH,CRCL
ff	0b	10	01 02 03 04 07 00	b2 41



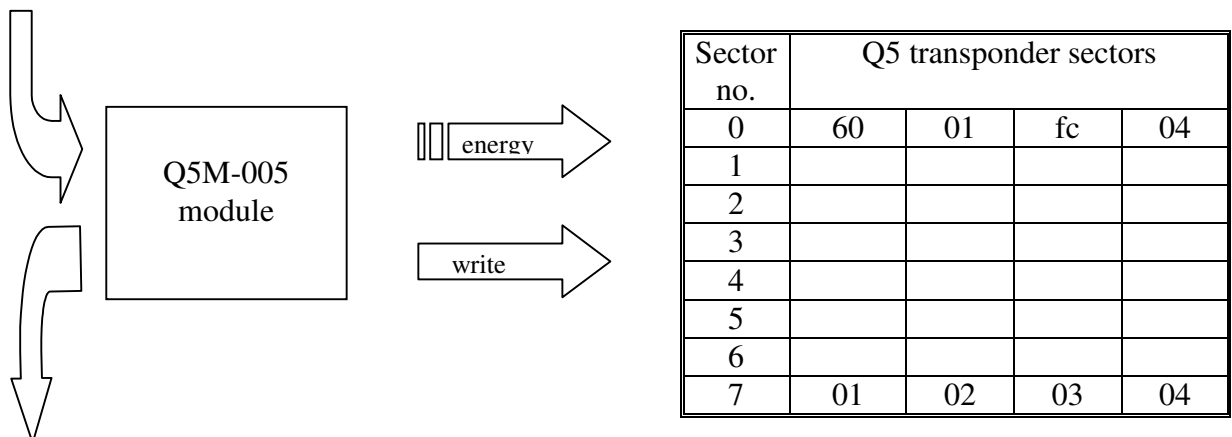
We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	06	11	-	ff	ea a6

(Verify the password write - C_HL_Q5SectorRead)

We send the configuration setting string to the module Q5M-005:

module address	frame length	command	data	CRCH,CRCL
ff	0b	10	60 01 fc 04 00 00	94 1f



We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	06	11	-	ff	ea a6

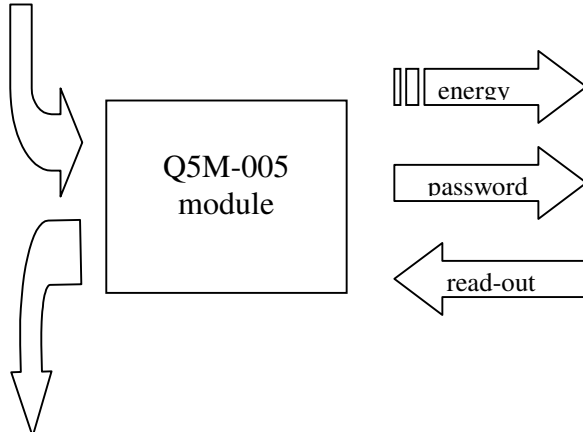
If the write is correct, we will use only the password for access to the transponder next time.

Example 4 Read-out with password

We are to read the sector no. 7 of transponder protected with 01 02 03 04 password.
For this purpose you can use high level function C_HL_WithPasswordQ5SectorRead.

We send the sector number for read-out and the password to the Q5M-005 module:

module address	frame length	command	data	CRCH,CRCL
ff	0a	22	07 01 02 03 04	b3 9e



Sector no.	Q5 transponder sectors			
0				
1				
2				
3				
4				
5				
6				
7	Written password			

We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	0a	23	01 02 03 04	ff	83 28

That means, that we have read the sector with the password.

Example 5 Removing the password

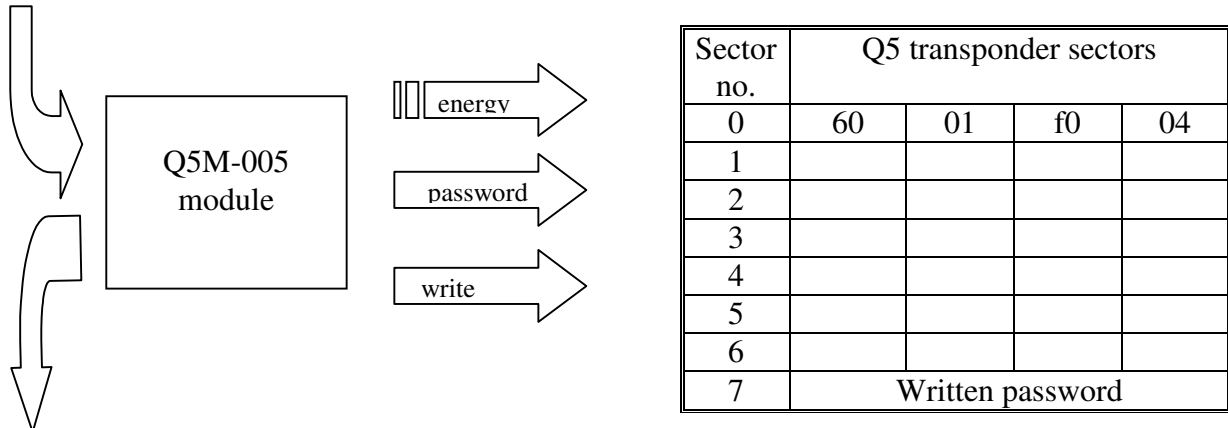
We are to unprotect Q5 transponder, which is secured with 01 02 03 04 password.

For this purpose, we should configure sector no. 0 properly.

To the transponder will not require the password, write the value of 60 01 f0 04 to the sector no. 0.

We send the new configuration and password to the Q5M-005 module:

module address	frame length	command	data	CRCH,CRCL
ff	0f	20	60 01 f0 04 00 01 02 03 04 00	52 b5



We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	06	21	-	ff	ef 33

If the write process is correct, we won't need a password for access to the transponder any longer.

Low level function operation

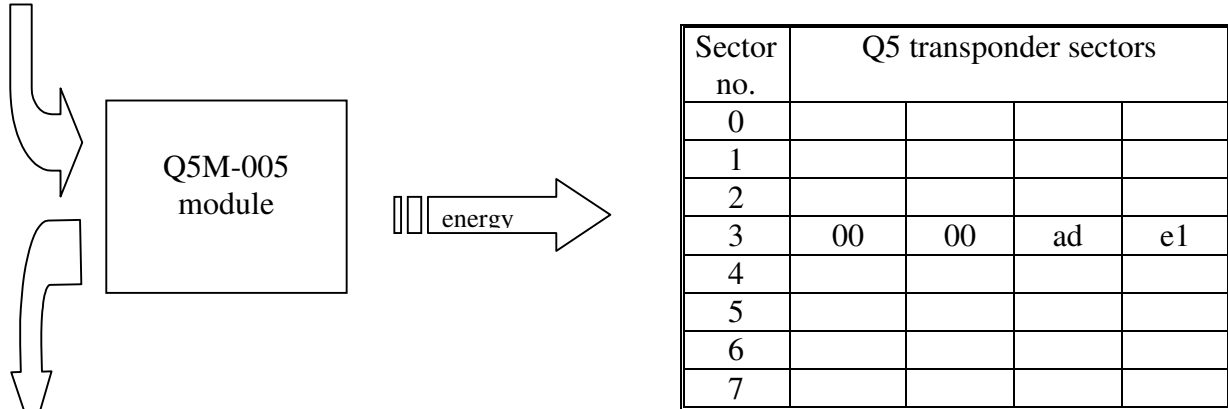
Example 6 Sector decrementation

We are to decrement the sector no. 3 of the transponder.

Assuming that, the value of 44513 is written into sector no. 3 and it is equal to ade1 in hexadecimal code.

We switch the antenna generated field on:

module address	frame length	command	data	CRCH,CRCL
ff	05	30	-	06 c5

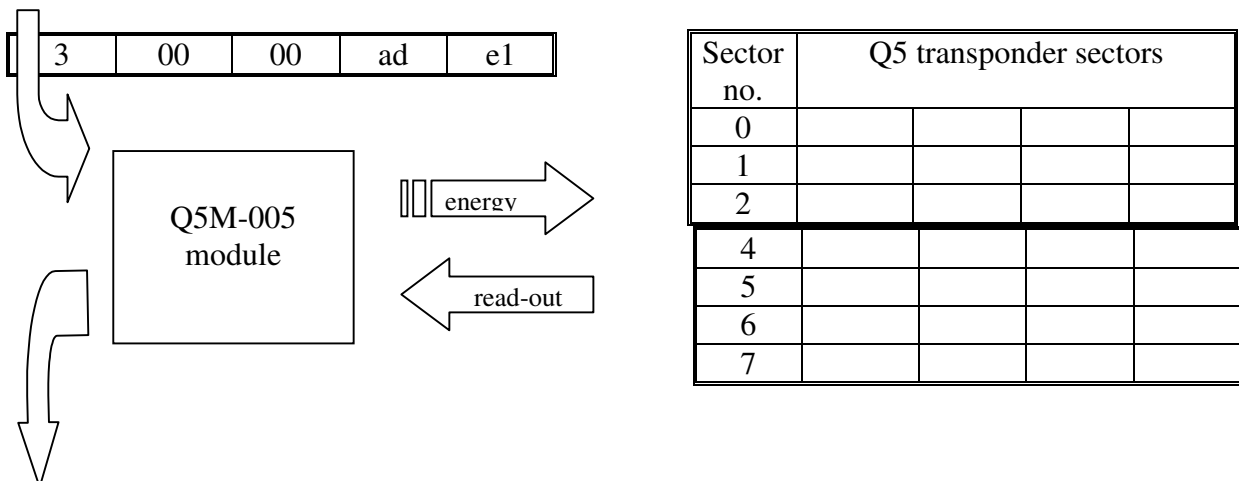


We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	06	31	-	ff	ec 40

We read-out the sector no. 3:

module address	frame length	command	data	CRCH,CRCL
ff	06	42	03	a2 ce



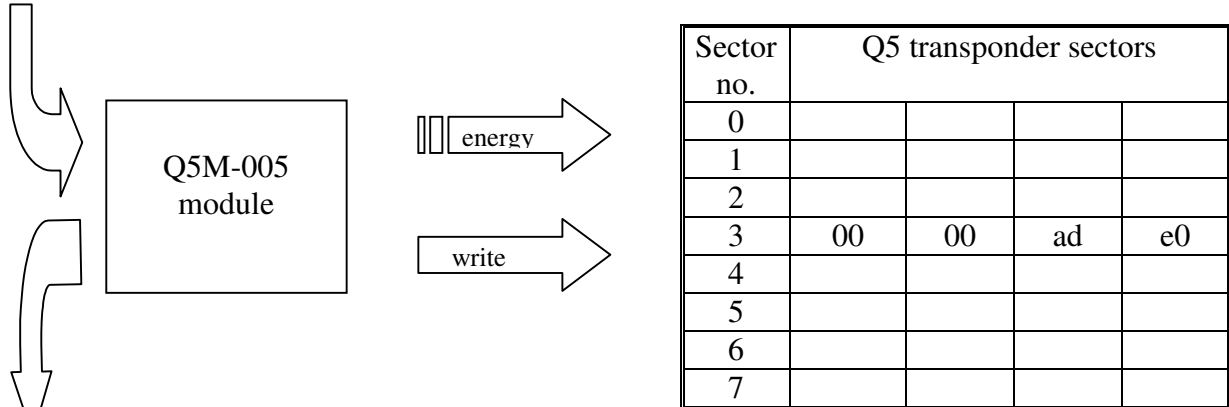
We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	0a	43	00 00 ad e1	ff	d2 d3

The user application layer decrements read-out value ade1-1=ade0

We write the decremented value:

module address	frame length	command	data	CRCH,CRCL
ff	0b	40	00 00 ad e0 03 00	a1 ec



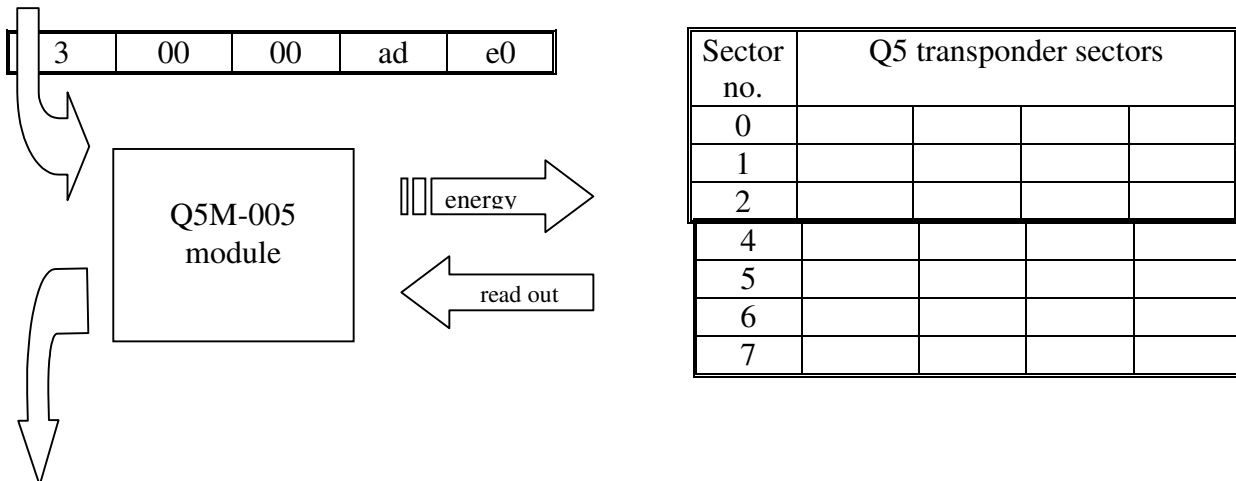
We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	06	41	-	ff	e4 19

In that case to verify the write it is recommended to read-out the sector.

We read out the sector no. 3:

module address	frame length	command	data	CRCH,CRCL
ff	06	42	03	a2 ce



We receive the response:

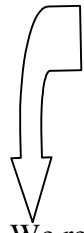
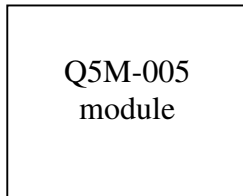
module address	frame length	command	data	operation code	CRCH,CRCL
01	0a	43	00 00 ad e0	ff	e1 e2

It means that decrementation of sector no. 3 has been finished successfully.

We switch the antenna produced field off:

module address	frame length	command	data	CRCH,CRCL
ff	05	32	-	26 87

3	00	00	ad	e0
---	----	----	----	----



Sector no.	Q5 transponder sectors			
0				
1				
2				
4				
5				
6				
7				

We receive the response:

module address	frame length	command	data	operation code	CRCH,CRCL
01	06	33	-	ff	92 45

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