



CYBERNETIC SOFTWARE
DEVELOPMENT
RDAc Compact

Contents

1 . INTRODUCTION	3
2 . PRODUCT OVERVIEW	4
3 . TECHNICAL DESCRIPTION	7
4 . GETTING STARTED	8
4.1 Switching On.....	8
4.2 Viewing Different Menus.....	8
4.3 Station Parameters.....	9
4.4 SMS Command Set.....	10
5 . REGISTER MAP	14
6 . CONTACT INFORMATION.....	18

1. INTRODUCTION

This is an introduction into the RDAc Compact product.

This document will give an overview of the RDAc Compact product. It will discuss its technical specifications, features as well as instruct the user on how to get started with this product.

For any additional information, please contact Tecmo Automation for support on the product.

2. PRODUCT OVERVIEW



Figure 1: RDAc Compact

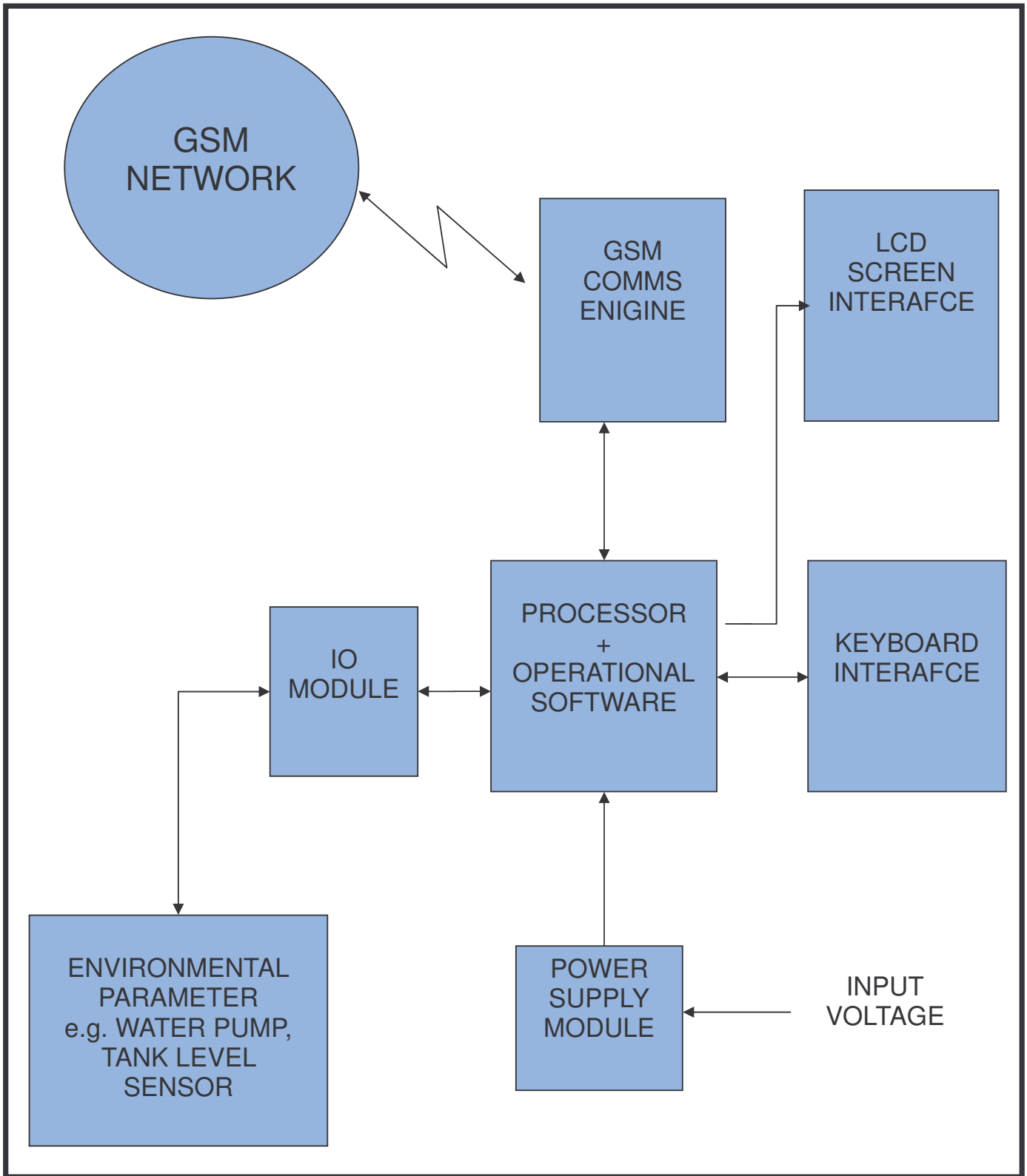


Figure 2: RDAc Compact – Block Diagram

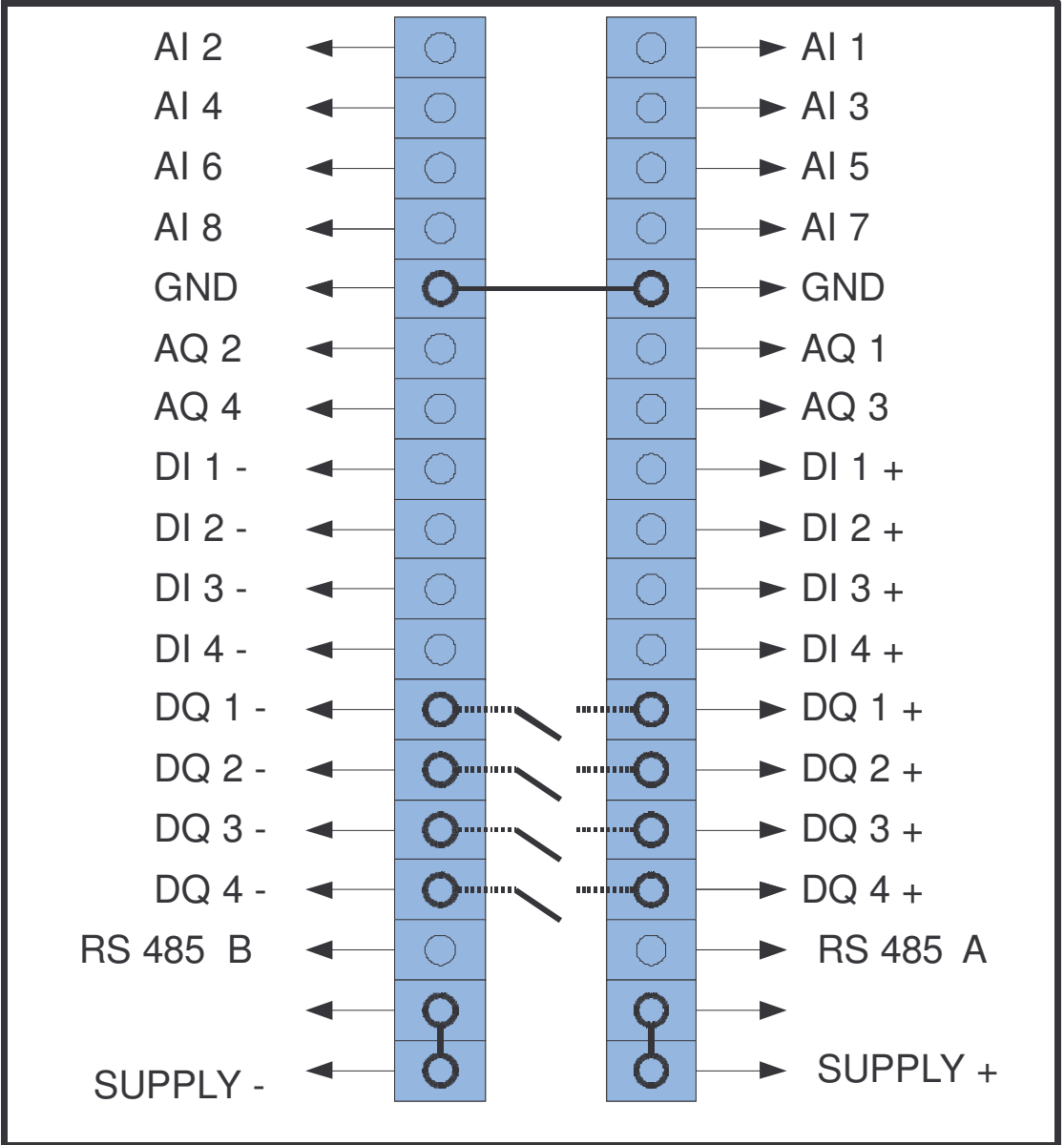


Figure 3: RDAC Compact – Wiring Diagram

3. TECHNICAL DESCRIPTION

MODEL: P07007A1

- Low Power multi-function Input/Output Remote Logger with built in GPRS communication
- Links the local display and the keypad for user and site information
- Use in Remote Data Control Station or Data acquisition

FEATURES:

- 128 x 64 Graphical Liquid Crystal Display
- 25-Key Digit Keypad
- Wide Power Supply Input Range (10 VDC – 30VDC)
- Multi IO:
 - i. 8 Analog Inputs
 - ii. 4 Digital Inputs
 - iii. 4 Digital Outputs; Relay contacts
 - iv. 4 Analog Outputs, 4-20mA Current or 0-5V Voltage Outputs
- RS485 and RS232 Communication Interface
- Convenient Terminal Block Connectors for easy Installation and Setup
- Low Power function for Battery operation
- Real Time Clock function
- Storage capacity
- SMS Configuration, Parameter-Viewing and Alarm functionality

SPECIFICATIONS:

- DC Supply Voltage : 10-30V
- Current Consumption : 100mA
- Analog Inputs : 0 – 5V or 4-20mA
- Digital Outputs : 1A Voltage free contact
- Analog Outputs : 4 – 20mA at 24V
- Digital Inputs : 10 - 30V
- GSM (Standard SA Network)

4. GETTING STARTED

This section will guide the user on how to use the RDAc Compact product.

4.1 Switching On

Supply the unit with the specified voltage (see above specification) at the specified terminals (see above figure).

When power is supplied, the unit will start up and prompt the user with messages.

When the unit has finished with its start up procedure, the LCD screen will go to its default screen and display information. Information can be changed like SITE NAME to suite the user's needs.

4.2 Viewing Different Menus

The RDAc Compact has several menus through which it displays information to the user.

Using the keys on the local keyboard, the user can navigate through the different menus to view information on the device and on the specific IO and Alarm channels.

The following menus can be obtained using the following keys:

- F1 – System Information
- F2 – IO Channel Setup/Information
- F3 – Alarm Channel Setup/Information
- F4 – System Diagnostics Information

Some of the above menus can be scrolled through to obtain more specific data. By pressing the UP and DOWN ARROW, the user can navigate through the menus to the specific information that he wishes to see.

NOTE: If no keys are pressed, the screen will scroll automatically through the different data (IO) channels and the different alarm channels. This will provide the local user with a constant overview of the different status' of the system.

4.3 Station Parameters

NODE - Information:

SiteName	[15]
ApnName1	[15]
MaintNumber	[15]
ApnName1User	[15]
ApnName1Passw	[15]
ApnName2	[15]
ApnName2User	[15]
ApnName2Passw	[15]
FtpServer	[15]
PingServer	[15]
TimeServer	[15]
PingTime	
FtpTime	
SmsTime	
LogTime	
BackLight	
ScrollTime	

Alarm Information:

ChnState	
Send	
Ch	
Type	
AlrType	
RawLow	
RawHigh	
wSign	
wReportTime	
fEngLow	
fEngHigh	
cName	[20]
cMess	[50]
cTelNum	[3][15]

Channel information:

RawLow
RawHigh
EngLow
EngHigh
LowAlrLevel
LowLowAlrLevel
HighAlrLevel
HighHighAlrLevel
Scaler
Units [10]
Product Name [20]
ADChn

4.4 SMS Command Set

Commands:

1- RST - reset station
2-SWQ - switch an output (1-4) on or off
3-RDQ - read DQ status (digital outputs)
4-RDI - read DI status (digital inputs)
5-RAI - read AI status (analogue inputs)
6-NODE - operate on node information
7-DAT - operate on data channels set-up information (1-8)
8-ALR - operate on alarm channels set-up information (1-8)

COMMAND DETAIL SUPPORT:

Switch coils command - (SWQ)

? Request current status
#Q1= operate on output 1 -> 0 or 1 for on or off.
#Q2= operate on output 2 -> 0 or 1 for on or off.
#Q3= operate on output 3 -> 0 or 1 for on or off.
#Q4= operate on output 4 -> 0 or 1 for on or off.

Example:

String Format - Switch coils:

Manual 1a) at+conf="#swq#Q1=1#" (to switch an output on)
Cell 1b) #swq#Q1=0# (to switch an output off)

Read coils command- (RDQ)

? Request current status

Example:

String Format – read digital output status:

Manual 1a) at+conf="#rdq#?#
Cell 1b) #rdq#?#

Read digital input commands - (RDI)

? Request current status

Example:

String Format – read digital input status:

Manual 1a) at+conf="#rdi#?# - get my settings for channel
Cell 1b) #rdi#?#

Read analog input commands - (RAI)

? Request current status

Example:

String Format – read analogue input channel status:

Manual 1a) at+conf="#rai#?# - get my settings for channel
Cell 1b) #rai#?#

Node commands - (NODE)

(Only indicated commands support yet)

#? Request current status

SiteName [15] - #N = < site name >
ApnName1 [15]
MaintNumber [15] - #T =
ApnName1User [15]
ApnName1Passw [15]
ApnName2 [15]
ApnName2User [15]

RDAc COMPACT

ApnName2Passw [15]
FtpServer [15]
PingServer [15]
TimeServer [15]
PingTime
FtpTime
SmsTime
LogTime - #L=
BackLight - #B=
ScrollTime;

Example:

String Format - Set Node information:

Manual 1a) at+conf="#node#n=CSD-Factory# L=10#"
Cell 1b) #node#n=CSD-Factory# L=10#

String Format – Get node information:

Manual 1a) at+conf="#node#?#" - get my settings
Cell 1b) #nodei#?#

Channel commands - (CHN)

#? Request current status

C=channel number / byte - **#C=**
E=units / string - **#E=**
N=point name / string - **#N=**
U=Input channels / byte - (fix - do not support for the moment)
V=Calibration Factor / float - **#V=**
W=Raw Low / word - **#W=**
X=Raw High / word - **#X=**
Y=Eng Low / float - **#Y=**
Z=Eng High / float - **#Z=**

Examples:

String Format – Set channel parameter:

Manual

1a)
at+conf="#chn#c=1#N=Tank1#E=Lit#U=1#V=1.0#W=0#X=4096#Y=0.0#Z=100.0#"

Cell

1b) #chn#c=1#N=Tank1#E=Lit#U=1#V=1.0#W=0#X=4096#Y=0.0#Z=100.0#

String Format – read channel parameters:

Manual 2a) at+conf="#chn#c=1#? - get my settings for channel
Cell 2b) #chn#c=1#

Alarm commands supported - (ALR)

Request status	- #?	Request current status
Channel	- #C	AI-input channel to alarm
Alarm mess	- #M=	Message or body of report string...
Alarm level	- #L=	Alarm level High or Low
		LOWALARM 1
		HIGHALARM 2
Alarm Setpoint	- #S=	Alarm Setpoint Value
Alarm Action	- #U=	Action on Alarm Activation
Alarm Output Channel	- #V=	Output Channel to be Activated on Alarm Trip
Alarm Trip Active Time	- #X=	Time Output Channel is Active after Alarm Trip
Telephone Number 1	- #T1=	Telephone number1
Telephone Number 2	- #T2=	Telephone number2
Telephone Number 3	- #T3=	Telephone number3
Report in time	- #R=	Report in time in min = (h*60) + min

Examples:

String Format - Set alarm channel parameters:

Manual

1a) at+conf="#alr#c=1#T1=0832299234#T2=0832299234#T3=0832299234#"
1b) at+conf="#alr#c=1#N=StationName#"

Cell

2a) #alr#c=1#tT1=0832299234#T2=0832299234#T3=0832299234#
2b) #alr#c=1#N=StationName#

String Format – read alarm channel parameters:

Manual 2a) at+conf="#alr#c=1#? - get my settings
Cell 2b) #alr#c=1#

5. REGISTER MAP

The first 128 registers from 40001 to 40128 are internal RAM registers and contain the I/O map for the device as the following table indicates.

ADDRESS	FUNCTION	RANGE	MODE
40001	Digital outputs	0-255	Write
40002	Analogue out 1	0-4095	Write
40003	Analogue out 2	0-4095	Write
40004	Analogue out 3	0-65535	Write
40005	Analogue out 4	0-65535	Write
40006	Reserve 1	0-65535	Write
40007	Reserve 2	0-65535	Write
40008	Comms receive count	0-65535	Write
40009	Digital Inputs	0-255	Read
	COUNTER CHANNELS		
40010	Counter 1 (CH 01)	0-65535	Read
40011	Counter 2 (CH 02)	0-65535	Read
40012	Counter 3 (CH 03)	0-65535	Read
40013	Counter 4 (CH 04)	0-65535	Read
40014	Counter 5 (CH 05)	0-65535	Read
40015	Counter 6 (CH 06)	0-65535	Read
40016	Counter 7 (CH 07)	0-65535	Read
40017	Feedback-Comms count	0-65535	Read
	AI - CHANNELS		
40018	Analogue 1 (CH 09)		
40019	Analogue 2 (CH 10)		Read
40020	Analogue 3 (CH 11)		Read
40021	Analogue 4 (CH 12)		Read
40022	Analogue 5 (CH 13)		Read
40023	Analogue 6 (CH 14)		Read
40024	Analogue 7 (CH 15)		Read
40025	Analogue 8 (CH 16)		Read
	SYSTEM SPARE		
40026	Battery_Raw		
40027	CPU_Supply		
40028	Internal Temperature		
40029	External Temperature		
40030	spare		
40031+32	Engineering Value - 1		
40033+34	Engineering Value - 2		
40035+36	Engineering Value - 3		
40037+38	Engineering Value - 4		
40039+39	Engineering Value - 5		
40041+42	Engineering Value - 6		
40043+44	Engineering Value - 7		
40045+46	Engineering Value - 8		

RDAc COMPACT

40047	Channel 1 0 -100 %		
40048	Channel 2 0 -100 %		
40049	Channel 3 0 -100 %		
40050	Channel 4 0 -100 %		
40051	Channel 5 0 -100 %		
40052	Channel 6 0 -100 %		
40053	Channel 7 0 -100 %		
40054	Channel 8 0 -100 %		
40055 + 56	GPRS_SIGNAL	User	
40057	GPRS_RX_CNT	User	
40058	GPRS_TX_CNT	User	
40059	GPRS_LASTUP	User	
40060	UART2_TX_CNT	User	
40061	UART2_RX_CNT	User	
	< Loc Record >		
40062	Year	WORD	
40063	Month	WORD	
40064	Day	WORD	
40065	Hour	WORD	
40066	Min	WORD	
40067	Sec	WORD	
40068	Spare	WORD	
40069+70	Channel 1	FLOAT	
40071+72	Channel 2	FLOAT	
40073+74	Channel 3	FLOAT	
40075+76	Channel 4	FLOAT	
40077+78	Channel 5	FLOAT	
40079+80	Channel 6	FLOAT	
40081+82	Channel 7	FLOAT	
40083+84	Channel 8	FLOAT	
	< extended chn's >		
40085+86	Channel 9	Signature	
40087+88	Channel 10	User	
40089+90	Channel 11	User	
40091+92	Channel 12	User	
40093+94	Channel 13	User	
40095+96	Channel 14	User	
40097+98	Channel 15	User	
40099+100	Channel 16	User	
	comms buffer		
40101	Year	spare	
40102	Month	spare	
40103	Day	spare	
40104	Hour	spare	
40105	Min	spare	
40106	Sec/not written	spare	

RDAc COMPACT

40107	Spare	spare	
40108	Channel 1	spare	
40109	Channel 1	spare	
40110	Channel 2	spare	
40111	Channel 2	spare	
40112	Channel 3	spare	
40113	Channel 3	spare	
40114	Channel 4	spare	
40115	Channel 4	spare	
40116	Channel 5	spare	
40117	Channel 5	spare	
40118	Channel 6	spare	
40119	Channel 6	spare	
40120	Channel 7	spare	
40121	Channel 7	spare	
40122	Channel 8	spare	
40123	Channel 8	spare	
40124	Read Info 2	spare	
40125	Read Info 1	spare	
40126	Read Command	spare	
40127	Write Info 1	spare	
40128	Write Command	spare	

NOTE: Flash base register start at 40129 – 40256

ADDRESS	FUNCTION	RANGE	MODE
40129	Application signature	0x1BAD	Read
40130	Hardware Type	0-65535	Read
40131	Software version	0-65535	Read
40132	Reserved	0-65535	Read
40133	Reserved	0-65535	Read
40134	Reserved	0-65535	Read
40135	Reserved	0-65535	Read
40136	Reserved	0-65535	Read
40137	Reserved	0-65535	Read
40138	Reserved	0-65535	Read
40139	Reserved	0-65535	Read
40140	Reserved	0-65535	Read
40141	Reserved	0-65535	Read
40142	Reserved	0-65535	Read
40143	Reserved	0-65535	Read
40144	Reserved	0-65535	Read
40145	Reserved	0-65535	Read
40146	Reserved	0-65535	Read
40147	Reserved	0-65535	Read

RDAc COMPACT

40148	Reserved	0-65535	Read
40149	Reserved	0-65535	Read
40150	Reserved	0-65535	Read/Write
40151	Reserved	0-65535	Read/Write
40152	Reserved	0-65535	Read/Write
40153	Reserved	0-65535	Read/Write
40154	Reserved	0-65535	Read/Write
40155	Reserved	0-65535	Read/Write
40156	Reserved	0-65535	Read/Write
40157	Reserved	0-65535	Read/Write
40158	Reserved	0-65535	Read/Write
40159	Reserved	0-65535	Read/Write
40160	Reserved	0-65535	Read/Write
40161	Reserved	0-65535	Read/Write
40162	Reserved	0-65535	Read/Write
40163	Reserved	0-65535	Read/Write
40164	Reserved	0-65535	Read/Write
40165	Reserved	0-65535	Read/Write
40166	Reserved	0-65535	Read/Write
40167	Reserved	0-65535	Read/Write
40168	Reserved	0-65535	Read/Write
40169	Reserved	0-65535	Read/Write
40170	Reserved	0-65535	Read/Write
40171	Reserved	0-65535	Read/Write
40172	Reserved	0-65535	Read/Write
40173	Reserved	0-65535	Read/Write
40174	Reserved	0-65535	Read/Write
40175	Reserved	0-65535	Read/Write

6. CONTACT INFORMATION

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