

Driver Manual
(Supplement to the FieldServer Instruction Manual)

FS-8705-19
Security Industry Association – SIA Codes
DSC System III

APPLICABILITY & EFFECTIVITY

Effective for all systems manufactured after Sep 20, 2010

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1. SIA Codes Driver Description

The driver provides an interface to alarm panels that support the Security Industry Association (SIA) codes and which produce event messages formatted as described in this document. The DSC system III is a device which meets these requirements. Take care – The SIA codes are a table of two letter event codes and their meanings. Many security panels use these codes BUT they do not all format messages in the same way.

When combined with another protocol driver the security panel event data can be served using another protocol such as BACnet, Lonworks, Johnson Controls N2, Rockwell, XML etc. A block diagram showing potential connectivity is provided below.

This is a passive client driver – it waits passively to receive event notifications. It cannot poll for data – this means this driver cannot send a message to the panel to obtain the status of the panel or some device. A consequence of this is that the user must be involved in synching the panel and the data collected by this driver. For information on synchronization is provided in this document.

The driver allows new codes to be added and existing codes to be modified providing some future proofing.

It is possible to configure this driver to store some events and not others. When events are received for which no storage location has been defined then the driver will print messages and update operation statistics. This will allow you to ensure you are not missing the events you need to monitor.

Each SIA code has been allocated an (arbitrary) integer value. When an event is received, the driver extracts the SIA code, looks it up in a table and stores the corresponding number. It is your job to interpret these numbers (suing the table provided in this manual) The driver can only be used as a passive client. Minimal active server functionality is provided only to support our ongoing quality assurance program by facilitating automated testing of the driver. This functionality allows the driver to send messages as if it were in fact a security panel. It is not documented or supported.

Synchronization

Special steps are required for synchronization. On startup the driver will have no knowledge of prior events. Its internal database will be empty and thus a remote system monitoring the gateway data might think that all devices are in a normal state. Thus synchronization is important. It requires manual actions by you. Firstly clear devices to their normal states. Now reset the FieldServer.

Driver Functionality

The driver waits for messages from the Panel. It cannot initiate communications nor read the status of a device.

Normally, the panel requires that each message it sends is acknowledged. The driver can be configured to send these acknowledgements. The default behavior is to not send the acknowledgements. Typically a panel will report a trouble if it does not receive an acknowledgement message within 4 seconds of sending a message.

The panel sends a message each time there is an event. In addition the panel sends an empty message periodically. When an acknowledgement is sent in response to the empty message (or in response to other messages) the panel knows that the connection is good and that the messages are being monitored.

When an event message arrives, the driver breaks out the data, determining the event type. The event type tells the driver whether the event applies to a zone, printer, line, door, area etc. Now the driver can determine, the zone, printer, door (... etc) number. This gives the driver enough information on where to store the event data. If a new event occurs for that zone (for example) then the previous event data is overwritten.

In addition, the driver can store the most recent event data in a particular location. Each new event overwrites the previous data. There is no queue of data.

Max Nodes Supported

FieldServer Mode	Nodes	Comments
Passive Client	1	Only one panel can be connected to a single FieldServer . If this limitation has significant impact for your project, contact us, we might be able to change this limitation.
Active Server (Simulate a Panel)	0	Not supported or documented.

2. Driver Scope of Supply

2.1. Supplied by FieldServer Technologies for this driver

FieldServer Technologies PART #	Description
-	No specific cables are shipped with this driver. A generic RJ45 Ethernet cable must be shipped with this driver.
-	A generic male and Female connector kit must be shipped with this driver.
FS-8705-19	Driver Manual.

2.2. Provided by the Supplier of 3rd Party Equipment

2.2.1. Required 3rd Party Hardware

Part #	Description

2.2.2. Required 3rd Party Software

2.2.3. Required 3rd Party Configuration

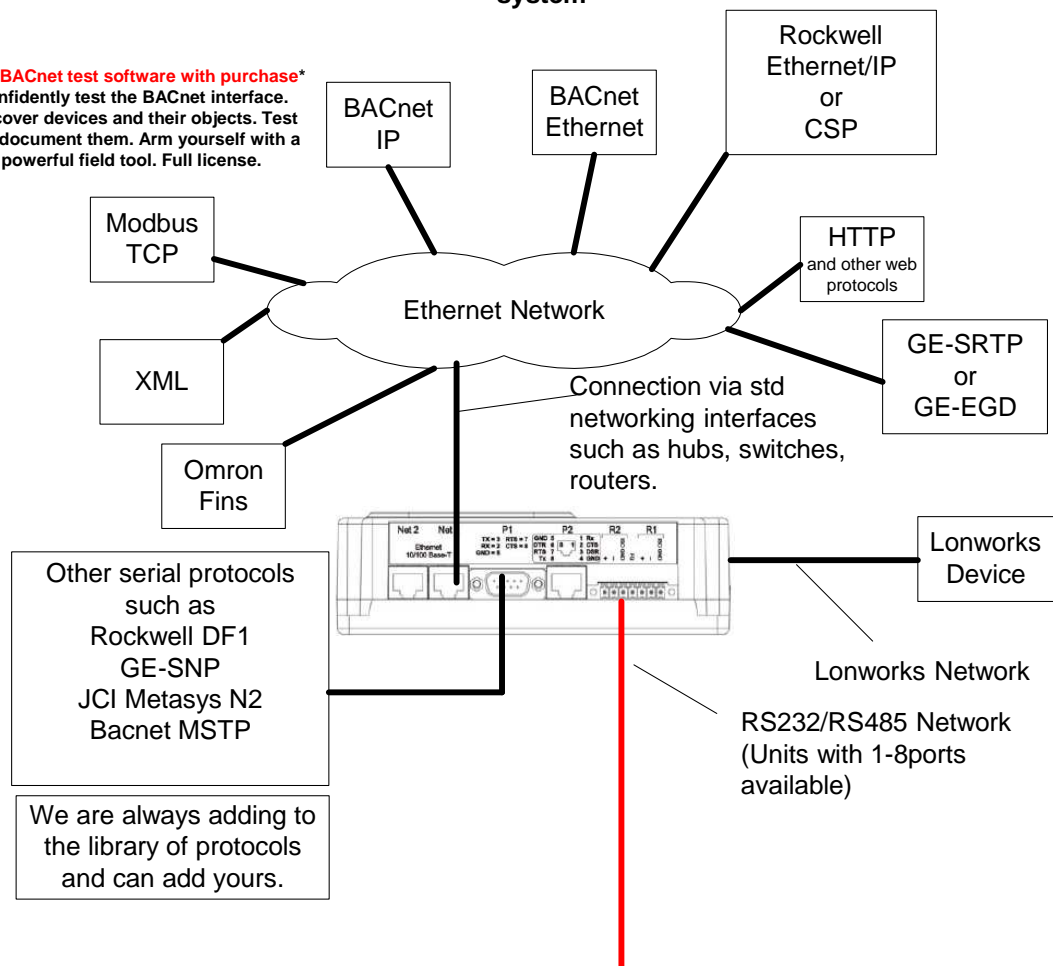
None Known.

3. Hardware Connections

Multiple upstream protocols and connection supported. See list of FieldServer Drivers.

Monitor and Control DSC Security Panels with SIA codes using BACnet, Lonworks or a PLC system

Free BACnet test software with purchase*
 Confidently test the BACnet interface.
 Discover devices and their objects. Test
 and document them. Arm yourself with a
 powerful field tool. Full license.



We are always adding to the library of protocols and can add yours.



DSC Security Panels

3.1. Hardware Connection Tips / Hints

4. Configuring the FieldServer as a SIA Panel Passive Client

For a detailed discussion on FieldServer configuration, please refer to the FieldServer Configuration Manual. The information that follows describes how to expand upon the factory defaults provided in the configuration files included with the FieldServer (See “.csv” sample files provided with the FS).

This section documents and describes the parameters necessary for configuring the FieldServer to communicate with a DSC SIA Panel

4.1. Data Arrays/Descriptors

The configuration file tells the FieldServer about its interfaces, and the routing of data required. In order to enable the FieldServer for FSC - Electronic Siren Controllers Serial Driver communications, the driver independent FieldServer buffers need to be declared in the “Data Arrays” section, the destination device addresses need to be declared in the “Client Side Nodes” section, and the data required from the servers needs to be mapped in the “Client Side Map Descriptors” section. Details on how to do this can be found below.

Note that in the tables, * indicates an optional parameter, with the bold legal value being the default.

Section Title		
Data_Arrays		
Column Title	Function	Legal Values
Data_Array_Name	Provide name for Data Array	Up to 15 alphanumeric characters
Data_Array_Format	Provide data format. Each Data Array can only take on one format.	Float, Bit, UInt16, UInt32, SInt16, Packed_Bit, Byte, Packed_Byte, Swapped_Byte
Data_Array_Length	Number of Data Objects. Must be larger than the data storage area required by the Map Descriptors for the data being placed in this array.	1-10,000

Example

```
// Data Arrays
Data_Arrays
Data_Array_Name,      Data_Format,      Data_Array_Length,
sia-stats,           UNT16,           200
```

4.2. Client Side Connection Descriptions

Create one connection for each PRO2000 port. Each connection can only be used to connect to a single PRO2000 interface/port.

Section Title		
Connections		
Column Title	Function	Legal Values
Port	Specify which port the device is connected to the FieldServer	P1-P8, R1-R2 ¹
Protocol	Specify protocol used	SIA
Baud*	Specify baud rate	Driver Supports : 110; 300; 600; 1200; 2400; 4800; 9600 ; 19200; 28800; 38400; 57600 Baud
Parity*	Specify parity	Driver Supports : 7,8
Data_Bits*	Specify data bits	Driver Supports : 1,2
Stop_Bits*	Specify stop bits	Driver Supports : Odd, Even, None
Handshaking*	Specify hardware handshaking	None
Poll_Delay*	This parameter is not used.	
SIA_Send_Ack	Default is No. When enabled with a 'Yes' in the configuration file, the driver will send an ack each time it receives a message.	No, Yes

¹ Not all ports shown are necessarily supported by the hardware. Consult the appropriate Instruction manual for details of the ports available on specific hardware.

Example

// Client Side Connections			
Connections			
Port,	Baud,	Parity,	Protocol,
P1,	9600,	None,	SIA,

4.3. Client Side Node Descriptors

Create one Node per connection only.

Section Title		
Nodes		
Column Title	Function	Legal Values
Node_Name	Provide name for node	Up to 32 alphanumeric characters
Node_ID	Station address of physical server node This parameter is not used directly by the driver. We recommend that a unique Node ID's be given to each node.	1-258
Protocol	Specify protocol used	SIA
Connection	Specify which port the device is connected to the FieldServer	P1-P8, R1-R2 ²

² Not all ports shown are necessarily supported by the hardware. Consult the appropriate Instruction manual for details of the ports available on specific hardware.

Example

```
// Client Side Nodes  
  
Nodes  
Node_Name,      Node_ID,      Protocol,      Connection  
Pro2kPanel,    1,           SIA,          P1
```

4.4. Client Side Map Descriptors

For Passive Client configurations, normally the Map Descriptors define the storage location for incoming data. This driver is different. **No Map Descriptors are required for this protocol.** Storage is based on creating Data Arrays which are suitably named.

4.5. How Data Arrays are used to Store Events

Each event report contains the 'address' of the device as well as information about the event type. By creating and naming data arrays appropriately you can define storage for the event data.

Each event may be stored in 3 ways. You can use all 3 or any one or two methods.

4.5.1. Method 1 - Most Recent Event Data

If you create a data array named 'sia_recent' the driver will store information about the most recent event in this array. Each location in the array has a specific meaning. Each new event causes this data to be overwritten. (Using Moves and Logic in the configuration) it is possible to make a small queue of these recent events.

Offset	Contents
0	Source
1	Receiver
2	Line Card

3	Account Number
4	Partition
5	Event Code – 1 st of 2 characters
6	Event Code – 2nd of 2 characters
7	Spare
8	Code Number Each code is represented by an index number. Eg. QA(Emergency alarm)=128 For a full list of these numbers see Appendix A
9	Zone Code
10	Number - Zone, door, area, line ... etc

4.5.2. Method 2 – Storing Data for Any Zone, Door, Line ... etc

This method works this way – There is a data array to store (for example) zone data. If zone 21 reports an event, then the event number is stored in location/offset 21. If zone 1 reports then the storage location/offset is 1. In General offset x for Zone x.

You do not need to store data you are not interested in. The only consequence to ignoring some events, is that the driver will print some message warning you that some events are not being stored.

If you create the following set of data arrays then all 12 types of events can be captured. The length of the data array is important. In this example, the length is 200. This if zone 200 reports an event, the data array will be too short. Reason – the length is 200 , the 1st element is offset 0, the last element is offset 199. Therefore there is no offset 200 to store the zone event.

Data_Arrays	Data_Array_Name	Data_Format	Data_Array_Length
	Sia_allUN	,UINT16	,200
	Sia_allUSER	,UINT16	,200
	Sia_allZONE	,UINT16	,200
	Sia_allAREA	,UINT16	,200
	Sia_allDOOR	,UINT16	,200
	Sia_allEXP	,UINT16	,200
	Sia_allREL	,UINT16	,200
	Sia_allMANU	,UINT16	,200
	Sia_allDEAL	,UINT16	,200
	Sia_allLINE	,UINT16	,200
	Sia_allPRNT	,UINT16	,200
	Sia_allIPT	,UINT16	,200

(Read section 4.2 ZoneCodes Table to see how we came to these array names).

Each time a new event occurs the previous data at that location is overwritten.

Example: QA009

QA is event number 128. It applies to zones. (zonecode column of table in section 4.1 Event Codes – Event Code Numbers.

Therefore the value 128 will be stored at offset 9 in the table Sia_allZONE

Example: DD027

DD is event number 29. It applies to doors. (zonecode column of table in section 4.1 Event Codes – Event Code Numbers.

Therefore the value 29 will be stored at offset 27 in the table Sia_allDOOR

What happens if you have the same zone/door/line etc number allocated in two different areas of you site ? The driver is able to differentiate between zone x on one Receiver/LineCard/Partition and zone x on another one. Contact support for more information.

4.5.3. Method 32 – Storing Data for a Specific Zone, Door, Line ... etc

This method works this way – You create a data array for a specific zone/door/area etc and the driver stores the event number at offset zero in that array.

You do not need to store data you are not interested in. The only consequence to ignoring some events, is that the driver will print some message warning you that some events are not being stored.

To know how to form the data array name you will need manual section
4.2 ZoneCodes Table

To see the base name.

Eg. Base name for zones is 'ZONE'

Eg. Base name for doors is 'DOOR'

Data Array Names are formed as follows

Sia_xxxx001 where xxxx is 2 to 4 characters from the 4.2 ZoneCodes Table

Eg.,

In this example, Data arrays exist to store events for zones 1 to 4 and for Door #5.

Data_Arrays

Data_Array_Name ,Data_Format ,Data_Array_Length

Sia_ZONE001	,UINT16	,1
Sia_ZONE002	,UINT16	,1
Sia_ZONE003	,UINT16	,1
Sia_ZONE004	,UINT16	,1
Sia_DOOR005	,UINT16	,1

What happens if you have the same zone/door/line etc number allocated in two different areas of you site ? The driver is able to differentiate between zone x on one Receiver/LineCard/Partition and zone x on another one. Contact support for more information.

4.1. Event Codes – Event Code Numbers.

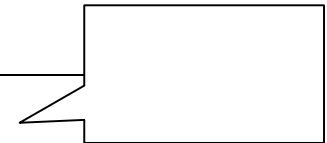
SIA codes are two alpha characters. Each pair represents a different event type. The SIA codes actually infer two items of information.

- 1) the event type – eg. QA Emergency alarm
- 2) what the event applies to. Eg. Zone, Door

Using the table below you can see the driver will store the value 128 when it receives a ‘QA’ event. Using the table you can see that the QA event reports the Zone number.

Using the table below you can see the driver will store the value 138 when it receives a ‘RC’ event. Using the table you can see that the RC event reports the Relay number.

Event Code0	Event Code1	Code Number	Description of Event	ZoneCode
A	R	1	AC restoral AC power has been restored	SIA_ZONECODE_UNUSED
A	T	2	AC trouble AC power has been failed	SIA_ZONECODE_UNUSED
B	A	3	Burglary alarm Burglary zone has been violated while armed	SIA_ZONECODE_ZONE
B	B	4	Burglary bypass Burglary zone has been bypassed	SIA_ZONECODE_ZONE
B	C	5	Burglary cancel Alarm has been cancelled	SIA_ZONECODE_USER
B	H	6	Burglary A. rest. Alarm condition eliminated	SIA_ZONECODE_ZONE
B	J	7	Burglary T. rest. Trouble condition eliminated	SIA_ZONECODE_ZONE
B	R	8	Burglary restoral Alarm/trouble condition eliminated	SIA_ZONECODE_ZONE
B	S	9	Burglary supervisory. Unsafe intrusion detection system condition	SIA_ZONECODE_ZONE
B	T	10	Burglary trouble Burglary zone activated during testing	SIA_ZONECODE_ZONE
B	U	11	Burglary unbypass Zone bypass has been removed	SIA_ZONECODE_ZONE
B	V	12	Burglary Verified More than 3 burglary zones have been triggered	SIA_ZONECODE_ZONE
B	X	13	Burglary test Burglary zone activated during testing	SIA_ZONECODE_ZONE



C	A	14	Automatic closing System armed automatically	SIA_ZONECODE_AREA
C	E	15	Closing extend Extend closing time	SIA_ZONECODE_USER
C	F	16	Forced closing System armed some zones not ready	SIA_ZONECODE_USER
C	G	17	Close area System has been partially armed	SIA_ZONECODE_USER
C	I	18	Fail to close An area has not been armed at the end of the closing window	SIA_ZONECODE_USER
C	J	19	Late close An area was armed after the closing window	SIA_ZONECODE_USER
C	K	20	Early close An area was armed before the closing window	SIA_ZONECODE_USER
C	L	21	Closing report System armed normal	SIA_ZONECODE_USER
C	P	22	Automatic closing System armed automatically	SIA_ZONECODE_USER
C	R	23	Recent Closing An alarm occurred within five minutes after the system was closed	SIA_ZONECODE_USER
C	S	24	Closing switch Account has been armed by Keyswitch	SIA_ZONECODE_ZONE
C	T	25	Late to open System was not disarmed on time	SIA_ZONECODE_AREA
C	W	26	Was force armed Header for a force armed session- forced point msg. may follow	SIA_ZONECODE_AREA
C	Z	27	Point closing A point- as opposed to a whole area or account- has closed.	SIA_ZONECODE_ZONE
D	C	28	Access closed Access to all users prohibited	SIA_ZONECODE_DOOR
D	D	29	Access denied Access denied- unknown code	SIA_ZONECODE_DOOR
D	F	30	Door forced Door opened without access request	SIA_ZONECODE_DOOR
D	G	31	Access granted Door access granted	SIA_ZONECODE_DOOR
D	K	32	Access lockout Access denied- known code	SIA_ZONECODE_DOOR
D	O	33	Access open Access to authorised users allowed	SIA_ZONECODE_DOOR
D	R	34	Door restoral access alarm/trouble condition eliminated	SIA_ZONECODE_DOOR
D	S	35	Door station Identifies door for next report	SIA_ZONECODE_DOOR
D	T	36	Access trouble Access system trouble	SIA_ZONECODE_UNUSED
D	U	37	dealer ID Zone description gives dealer ID # dealer	SIA_ZONECODE_DEALER
E	A	38	Exit Alarm an exit zone remained violated at the end of the exit delay period	SIA_ZONECODE_ZONE

E	E	39	Exit error an exit zone remained violated at the end of the exit delay period	SIA_ZONECODE_USER
E	R	40	Expansion rest. Expansion device trouble eliminated	SIA_ZONECODE_EXPANDER
E	T	41	Expansion trouble Expansion device trouble	SIA_ZONECODE_EXPANDER
F	A	42	Fire alarm Fire condition detected	SIA_ZONECODE_ZONE
F	B	43	Fire bypass Zone has been bypassed	SIA_ZONECODE_ZONE
F	H	44	Fire Alarm restore Alarm condition eliminated	SIA_ZONECODE_ZONE
F	I	45	Fire test begin The transmitter area's fire test has begun	SIA_ZONECODE_AREA
F	J	46	Fire Trouble restore Trouble condition eliminated	SIA_ZONECODE_ZONE
F	K	47	Fire test end The transmitter area's fire test has ended	SIA_ZONECODE_AREA
F	R	48	Fire restoral Alarm/trouble condition has been eliminated	SIA_ZONECODE_ZONE
F	S	49	Fire supervisory Unsafe fire detection system condition	SIA_ZONECODE_ZONE
F	T	50	Fire trouble Zone disabled by fault	SIA_ZONECODE_ZONE
F	U	51	Fire unbypass Bypass has been removed	SIA_ZONECODE_ZONE
F	X	52	Fire test Fire zone activated during test	SIA_ZONECODE_ZONE
F	Y	53	Missing fire Trouble A fire point is now logically missing	SIA_ZONECODE_ZONE
G	A	54	Gas alarm Gas alarm condition detected	SIA_ZONECODE_ZONE
G	B	55	Gas bypass Zone has been bypassed	SIA_ZONECODE_ZONE
G	H	56	Gas A. restore Alarm condition eliminated	SIA_ZONECODE_ZONE
G	J	57	Gas T. restore Trouble condition eliminated	SIA_ZONECODE_ZONE
G	R	58	Gas restoral Alarm \ trouble condition has been eliminated	SIA_ZONECODE_ZONE
G	S	59	Gas supervisory Unsafe gas detection system condition	SIA_ZONECODE_ZONE
G	T	60	Gas trouble Zone disabled by fault	SIA_ZONECODE_ZONE
G	U	61	Gas unbypass Bypass has been removed	SIA_ZONECODE_ZONE
G	X	62	Gas test gas Zone activated during test	SIA_ZONECODE_ZONE
H	A	63	Hold-up alarm Silent alarm- user under duress	SIA_ZONECODE_ZONE
H	B	64	Hold-up bypass Zone has been bypassed	SIA_ZONECODE_ZONE
H	H	65	Hold-up A. rest. Alarm condition eliminated	SIA_ZONECODE_ZONE
H	J	66	Hold-up T. rest. Trouble condition eliminated	SIA_ZONECODE_ZONE

H	R	67	Hold-up restoral Alarm \ trouble condition eliminated	SIA_ZONECODE_ZONE
H	S	68	Hold-up supervisory. Unsafe holdup system condition	SIA_ZONECODE_ZONE
H	T	69	Hold-up trouble Zone disabled by default	SIA_ZONECODE_ZONE
H	U	70	Hold-up unbyypass Bypass has been removed	SIA_ZONECODE_ZONE
J	A	71	User code tamper Too many unsuccessful attempts have been made to enter a user ID	SIA_ZONECODE_AREA
J	D	72	Date changed The date was changed in the transmitter/receiver	SIA_ZONECODE_USER
J	H	73	Holiday changed The transmitter's holiday schedule has been changed	SIA_ZONECODE_USER
J	L	74	Log threshold The transmitter's log memory has reached its threshold level	SIA_ZONECODE_UNUSED
J	O	75	Log overflow The transmitter's log memory has overflowed	SIA_ZONECODE_UNUSED
J	R	76	Schedule execute An automatic scheduled event was executed	SIA_ZONECODE_AREA
J	S	77	Schedule change An automatic schedule was changed	SIA_ZONECODE_USER
J	T	78	Time changed The time was changed in the TX\RX	SIA_ZONECODE_USER
J	V	79	User code change A user's code has been changed	SIA_ZONECODE_USER
J	X	70	User code delete A user's code has been removed	SIA_ZONECODE_USER
K	A	81	Heat alarm High temperature detected on premise	SIA_ZONECODE_ZONE
K	B	82	Heat bypass Zone has been bypassed	SIA_ZONECODE_ZONE
K	H	83	Heat Alarm restore Alarm condition eliminated	SIA_ZONECODE_ZONE
K	J	84	Heat Trouble restore Trouble condition eliminated	SIA_ZONECODE_ZONE
K	R	85	Heat restoral Alarm/Trouble condition has been eliminated	SIA_ZONECODE_ZONE
K	S	86	Heat supervisory Unsafe heat detection system condition	SIA_ZONECODE_ZONE
K	T	87	Heat trouble Zone disable by fault	SIA_ZONECODE_ZONE
K	U	88	Heat unbyypass Bypass has been removed	SIA_ZONECODE_ZONE
L	B	89	Local program Begin local programming begin	SIA_ZONECODE_UNUSED
L	D	90	Local program Denied access code incorrect	SIA_ZONECODE_UNUSED
L	E	91	Listen-in ended The listen-in session has been terminated	SIA_ZONECODE_UNUSED
L	F	92	Listen-in begin The listen-in session with the receiver has begun	SIA_ZONECODE_UNUSED

L	R	93	Phone line rest. Phone line restored to service	SIA_ZONECODE_LINE
L	S	94	Local program Local programming successful	SIA_ZONECODE_UNUSED
L	T	95	Phone line Trouble Phone line report	SIA_ZONECODE_LINE
L	U	96	Local program fail Local programming unsuccessful	SIA_ZONECODE_UNUSED
L	X	97	Local program ended A local programming session has been terminated	SIA_ZONECODE_UNUSED
M	A	98	Medical alarm Emergency assistance request	SIA_ZONECODE_ZONE
M	B	99	Medical bypass Zone has been bypassed	SIA_ZONECODE_ZONE
M	H	100	Medical Alarm restore Alarm condition eliminated	SIA_ZONECODE_ZONE
M	J	101	Medical T. rest. Trouble condition eliminated	SIA_ZONECODE_ZONE
M	R	102	Medical restoral Alarm/trouble condition has been eliminated	SIA_ZONECODE_ZONE
M	S	103	Medical supervisory Unsafe system condition exists	SIA_ZONECODE_ZONE
M	T	104	Medical trouble Zone disabled by fault	SIA_ZONECODE_ZONE
M	U	105	Medical unbyypass Bypass has been removed	SIA_ZONECODE_ZONE
N	A	106	No activity There has been no activity for a programmed amount of time	SIA_ZONECODE_UNUSED
N	F	107	Forced perimeter arm Some zones/points not ready	SIA_ZONECODE_AREA
N	L	108	Perimeter armed An area has been perimeter armed	SIA_ZONECODE_AREA
O	A	109	Automatic opening System has disarm automatically	SIA_ZONECODE_AREA
O	C	110	Cancel report Untyped zone cancel	SIA_ZONECODE_USER
O	G	111	Open area System has been partially disarmed	SIA_ZONECODE_AREA
O	I	112	Fail to open An area has not been armed at the end of the opening window	SIA_ZONECODE_AREA
O	J	113	Late open An area was disarmed after the opening window	SIA_ZONECODE_USER
O	K	114	Early open An area was disarmed before the opening window	SIA_ZONECODE_USER
O	P	115	Opening report Account was disarmed	SIA_ZONECODE_USER
O	R	116	Disarm from alarm Account in alarm was reset/disarmed	SIA_ZONECODE_USER
O	S	117	Opening Keyswitch account has been disarmed by Keyswitch	SIA_ZONECODE_ZONE
O	T	118	Late to close System was not armed on time	SIA_ZONECODE_USER

O	Z	119	Point opening A point- rather than a full area or account- disarmed	SIA_ZONECODE_ZONE
P	A	120	Panic alarm Emergency assistance request- manually activated	SIA_ZONECODE_ZONE
P	B	121	Panic bypass Panic zone has been bypassed	SIA_ZONECODE_ZONE
P	H	122	Panic Alarm restore Alarm condition eliminated	SIA_ZONECODE_ZONE
P	J	123	Panic Trouble restore Trouble condition eliminated	SIA_ZONECODE_ZONE
P	R	124	Panic restoral Alarm/trouble condition has been eliminated	SIA_ZONECODE_ZONE
P	S	125	Panic Supervisory Unsafe system condition exists	SIA_ZONECODE_ZONE
P	T	126	Panic trouble Zone disabled by fault	SIA_ZONECODE_ZONE
P	U	127	Panic unbypass Panic zone bypass has been removed	SIA_ZONECODE_ZONE
Q	A	128	Emergency alarm Emergency assistance request	SIA_ZONECODE_ZONE
Q	B	129	Emergency bypass Zone has been bypassed	SIA_ZONECODE_ZONE
Q	H	130	Emergency. A. rest. Alarm condition has been eliminated	SIA_ZONECODE_ZONE
Q	J	131	Emergency. T. rest. Trouble condition has been eliminated	SIA_ZONECODE_ZONE
Q	R	132	Emergency. Restoral Alarm/trouble condition has been eliminated	SIA_ZONECODE_ZONE
Q	S	133	Emergency. Supervisory Unsafe system condition exists	SIA_ZONECODE_ZONE
Q	T	134	Emergency Trouble Zone disabled by fault	SIA_ZONECODE_ZONE
Q	U	135	Emergency. Unbypass Bypass has been removed	SIA_ZONECODE_ZONE
R	A	136	Remote Programmer Called failed Transmitter failed to communicate with the remote programmer	SIA_ZONECODE_UNUSED
R	B	137	Remote Program begin Remote programming session initiated	SIA_ZONECODE_UNUSED
R	C	138	Relay close The relay specified in the address field (optional) has energised	SIA_ZONECODE_RELAY
R	D	139	Remote Program Denied Access passcode incorrect	SIA_ZONECODE_UNUSED
R	N	140	Remote reset A transmitter was reset via a remote programmer	SIA_ZONECODE_UNUSED
R	O	141	Relay open The relay specified in the address field (optional) has deenergised	SIA_ZONECODE_RELAY
R	P	142	Automatic test Automatic communication test report	SIA_ZONECODE_UNUSED
R	R	143	Power up System lost power- is now restored	SIA_ZONECODE_UNUSED
R	S	144	Remote Program success Remote programming successful	SIA_ZONECODE_UNUSED

R	T	145	Data lost Dialer data lost- transmission error	SIA_ZONECODE_LINE
R	U	146	Remote Program fail Remote programming unsuccessful	SIA_ZONECODE_UNUSED
R	X	147	Manuel test Manuel communication test report	SIA_ZONECODE_USER
S	A	148	Sprinkler alarm Sprinkler flow condition exist	SIA_ZONECODE_ZONE
S	B	149	Sprinkler. Bypass Sprinkler zone has been bypassed	SIA_ZONECODE_ZONE
S	H	150	Sprinkler. Alarm restore Alarm condition eliminated	SIA_ZONECODE_ZONE
S	J	151	Sprinkler. Trouble restore trouble condition eliminated	SIA_ZONECODE_ZONE
S	R	152	Sprinkler. Restore Alarm/Trouble condition has been eliminated	SIA_ZONECODE_ZONE
S	S	153	Sprinkler. supervisory. Unsafe sprinkler system condition	SIA_ZONECODE_ZONE
S	T	154	Sprinkler. Trouble Zone disabled by fault	SIA_ZONECODE_ZONE
S	U	155	Sprinkler. unbypass Sprinkler zone bypass has been removed	SIA_ZONECODE_ZONE
T	A	156	Tamper alarm Alarm equipment enclosure opened	SIA_ZONECODE_ZONE
T	B	157	Tamper bypass Tamper detection has been bypassed	SIA_ZONECODE_ZONE
T	E	158	Test end Communicator restored to operation	SIA_ZONECODE_UNUSED
T	R	159	Tamper restoral Alarm equipment enclosure has been closed	SIA_ZONECODE_ZONE
T	S	160	Test start Communicator taken out of operation	SIA_ZONECODE_UNUSED
T	U	161	Tamper unbypass Tamper detection bypass has been removed	SIA_ZONECODE_ZONE
T	X	162	Test Report an unspecified (manual or automatic) communicator test	SIA_ZONECODE_ZONE
U	A	163	Untyped zone Alarm Alarm condition from zone of unknown type	SIA_ZONECODE_ZONE
U	B	164	Untyped zone Bypass Zone of unknown type has been bypassed	SIA_ZONECODE_ZONE
U	H	165	Untyped Alarm restoral Alarm condition eliminated	SIA_ZONECODE_ZONE
U	J	166	Untyped Trouble restoral Trouble condition eliminated	SIA_ZONECODE_ZONE
U	R	167	Untyped zone restoral Alarm/Trouble condition eliminated from zone of unknown type	SIA_ZONECODE_ZONE
U	S	168	Untyped zone sup. Unsafe condition from zone OK unknown type	SIA_ZONECODE_ZONE
U	T	169	Untyped zone Trouble Trouble condition from zone of unknown type	SIA_ZONECODE_ZONE

U	U	170	Untyped zone unbypass Bypass on zone of unknown type has been removed	SIA_ZONECODE_ZONE
U	X	171	Undefined An undefined alarm condition has occurred	SIA_ZONECODE_UNUSED
U	Y	172	Untyped missing Trouble A point which was not armed is now logically missing	SIA_ZONECODE_ZONE
U	Z	173	Untyped missing Alarm A point which was armed is now logically missing	SIA_ZONECODE_ZONE
V	I	174	Printer paper in Transmitter or receiver paper in	SIA_ZONECODE_PRINTER
V	O	175	Printer paper out Transmitter or receiver paper out	SIA_ZONECODE_PRINTER
V	R	176	Printer restore Transmitter or receiver trouble restored	SIA_ZONECODE_PRINTER
V	T	177	Printer trouble Transmitter or receiver trouble	SIA_ZONECODE_PRINTER
V	X	178	Printer test Transmitter or receiver test	SIA_ZONECODE_PRINTER
V	Y	179	Printer on line The receiver's printer is now on line	SIA_ZONECODE_UNUSED
V	Z	180	Printer off line The receiver's printer is now off line	SIA_ZONECODE_UNUSED
W	A	181	Water alarm Water detected at protected premise	SIA_ZONECODE_ZONE
W	B	182	Water bypass Water detection has been bypassed	SIA_ZONECODE_ZONE
W	H	183	Water alarm restoral Alarm condition eliminated	SIA_ZONECODE_ZONE
W	J	184	Water trouble restoral Trouble condition eliminated	SIA_ZONECODE_ZONE
W	R	185	Water restoral Alarm/Trouble condition has been eliminated	SIA_ZONECODE_ZONE
W	S	186	Water supervisory Unsafe water detection system condition	SIA_ZONECODE_ZONE
W	T	187	Water trouble Zone disable by fault	SIA_ZONECODE_ZONE
W	U	188	Water unbypass Water detection bypass has been removed	SIA_ZONECODE_ZONE
X	E	199	Extra point The panel has sensed an extra point not specified for this site	SIA_ZONECODE_POINT
X	F	200	Extra RF point The panel has sensed an extra RF point not specified for this site	SIA_ZONECODE_POINT
X	I	201	Sensor reset A user has reset a sensor	SIA_ZONECODE_ZONE
X	R	202	TX battery restoral Low battery has been corrected	SIA_ZONECODE_ZONE
X	T	203	TX battery trouble Low battery in wireless transmitter	SIA_ZONECODE_ZONE
X	W	204	Forced point A point was forced out of the system at arm time	SIA_ZONECODE_ZONE

Y	B	205	Busy seconds Percent of time receiver's line card is on-line	SIA_ZONECODE_LINE
Y	C	206	Communication fail Receiver and transmitter	SIA_ZONECODE_UNUSED
Y	D	207	RX line card trouble A line card identified by the passed address is in trouble	SIA_ZONECODE_LINE
Y	E	208	RX line card restoral A line card identified by the passed address is restored	SIA_ZONECODE_LINE
Y	F	209	Parameter checksum fail System data corrupted	SIA_ZONECODE_UNUSED
Y	G	210	Parameter changed A transmitter's parameters have been changed	SIA_ZONECODE_UNUSED
Y	K	211	Communication Restoral The transmitter has resumed communication with a receiver	SIA_ZONECODE_UNUSED
Y	M	212	System battery missing The transmitter/receiver battery is missing	SIA_ZONECODE_UNUSED
Y	N	213	Invalid report The transmitter has sent a packet with invalid data	SIA_ZONECODE_UNUSED
Y	O	214	Unknown message An unknown message was received from automation or the printer	SIA_ZONECODE_UNUSED
Y	P	215	Power supply trouble The transmitter/receiver has a problem with the power supply	SIA_ZONECODE_UNUSED
Y	Q	216	Power supply restored The transmitter/receiver's power supply has been restored	SIA_ZONECODE_UNUSED
Y	R	217	System battery restoral Low battery has been corrected	SIA_ZONECODE_UNUSED
Y	S	218	Communication trouble Receiver and transmitter	SIA_ZONECODE_UNUSED
Y	T	219	System battery trouble Low battery in control/communicator	SIA_ZONECODE_UNUSED
Y	W	210	Watchdog reset The transmitter created an internal reset	SIA_ZONECODE_UNUSED
Y	X	221	Service required A transmitter/receiver needs service	SIA_ZONECODE_UNUSED
Y	Y	222	Status report This is a header for an account status report transmission	SIA_ZONECODE_UNUSED
Y	Z	223	Service completed required transmitter / receiver service completed	SIA_ZONECODE_MANUF
Z	A	224	Freeze alarm Low temperature detected at premise	SIA_ZONECODE_ZONE
Z	B	225	Freeze bypass Low temperature detection has been bypassed	SIA_ZONECODE_ZONE
Z	H	226	Freeze A. restore Alarm condition eliminated	SIA_ZONECODE_ZONE

Z	J	227	Freeze T. restore Trouble condition eliminated	SIA_ZONECODE_ZONE
Z	R	228	Freeze restoral Alarm/Trouble condition has been eliminated	SIA_ZONECODE_ZONE
Z	S	229	Freeze supervisory Unsafe freeze detection system condition	SIA_ZONECODE_ZONE
Z	T	230	Freeze trouble Zone disabled by fault	SIA_ZONECODE_ZONE
Z	U	231	Freeze unbyypass Low temperature detection bypass removed	SIA_ZONECODE_ZONE

4.2. ZoneCodes Table

If you want to store events that report for zone you need to create data arrays that are appropriately named. This table provides part of those table names.

<u>Input Device</u>			
Index Number	ZoneCode Corresponds to the ZoneCode column in the Events codes table.	Data Array Name Prefix	Example – Method 2 Data Array Name
1	Unused	"UN"	Sia_allUN
2	User	"USER"	Sia_allUSER
3	Zone	"ZONE"	Sia_allZONE
4	Area	"AREA"	Sia_allAREA
5	Door	"DOOR"	Sia_allDOOR
6	Expander	"EXP"	Sia_allEXP
7	Relay	"REL"	Sia_allREL
8	Manufacturer	"MANU"	Sia_allMANU
9	Dealer	"DEAL"	Sia_allDEAL
10	Line	"LINE"	Sia_allLINE
11	Printer	"PRNT"	Sia_allPRNT
12	Point	"PNT"	Sia_allPT

4.3. Driver Limitations

Only messages formatted as described in this document can be processed.

5. Configuring the FieldServer as a SIA Server

This driver cannot be used to emulate an SIA Security panel.

Appendix 1. Advanced Topics

Appendix 1.1. How to add / change security Codes

The driver can handle a list of 250 codes. That leaves space for about 20 additional ones. You can add or amend entries in the table.

Create a comma separated file called siacode.ini and download it to the FieldServer. Each time the FieldServer restarts it will look for and read this file. It uses the contents to add new codes or to change some aspect of an existing one.

Any line with a # at the begin will be ignored.

```
#New code = AA, code number=999, It's a zone event
AA,999,3
#New code = AB, code number=321, It's a door event
AB,321,5
#code = QA, code number=998, It's a zone event
# driver will find this code and change code number from 128
# to 998. It was and still is a zone event code.
QA,998,3
#-----zonecode (last field - choose from one of these)
#define SIA_ZONECODE_UNUSED    1
#define SIA_ZONECODE_USER      2
#define SIA_ZONECODE_ZONE      3
#define SIA_ZONECODE_AREA      4
#define SIA_ZONECODE_DOOR      5
#define SIA_ZONECODE_EXPANDER  6
#define SIA_ZONECODE_RELAY     7
#define SIA_ZONECODE_MANUF     8
#define SIA_ZONECODE_DEALER    9
#define SIA_ZONECODE_LINE     10
#define SIA_ZONECODE_PRINTER   11
#define SIA_ZONECODE_POINT     12
```

Appendix 1.2. Driver Error Messages

<p>Error Message We have shown place holders for the parts of the message which change. %s is a place holder for a text string. %d is a place holder for a number %c is a place holder for an alpha character.</p>	<p>Explanation and corrective action <i>FYI messages are informational and do not require a corrective action. Simply use them to confirm configuration / behaviors are what you expect.</i></p>
<p>SIA:#01 FYI Updated Code=%c%c Num=%d Zonecode=%d</p>	<p>Driver found the file siacodes.ini and is using it to update the codes table. A code which matches an existing entry is found and so the existing entry is updated. Each time this occurs the driver prints this message.</p>
<p>SIA:#02 Err. Cant Add code. No space.</p>	<p>Driver found the file siacodes.ini and is using it to update the codes table. All the spare slots in the table have been used. Contact tech support.</p>
<p>SIA:#03 Err. Code=%c%c Num=%d Zonecode=%d</p>	<p>Printed each time msg#2 is printed.</p>
<p>SIA:#04 FYI Added Code=%c%c Num=%d Zonecode=%d</p>	<p>Driver found the file siacodes.ini and is using it to update the codes table. A code which does not matche an existing entry is found and a new entry is made. Each time this occurs the driver prints this message.</p>
<p>SIA:#05 FYI Processing file=siacodes.ini</p>	<p>Driver found the file siacodes.ini and is using it to update the codes table</p>
<p>SIA:#06 Err. Bad line=<%s></p>	<p>Driver found the file siacodes.ini and is using it to update the codes table. However a row in the file is not formatted correctly. Review the file, make corrections, download the modified file and then restart the</p>

	FieldServer to give effect to the changes.
SIA:#07 Err. ZoneCode Unknown	The zonecode for an event is unknown. The driver dumps the event message. If this occurs rarely, it might be because the there is a corrupted message. If it occurs more than once for the same zone then there is a problem. Capture diagnostic info and contact tech support.
SIA:#08 Err. No DA to store %c%02d%d_%d_ZN%03d	Essentially this message reports to you the fact that an event was received but there was no place to store it using method 2. The information provided in the message tells you Source Receiver LineCard Partiion Zonecode ZoneNumber
SIA:#09 Err. No DA to store %c%02d%d_%d_ZN%03d	Essentially this message reports to you the fact that an event was received but there was no place to store it using method 3. The information provided in the message tells you Source Receiver LineCard Partiion Zonecode ZoneNumber
SIA:#10 Err. DA=%s too short (Rqd=%d)	The data array is to short. Modify the config, download to the FieldServer and restart.
SIA:#11 FYI. Configured to NOT ack msgs.	Printed once only.
SIA:#12 Err Cant open File=%s	This message should only be printed during QA testing. Call tech support.
SIA:#13 Err : do diagnostic 1	This message should only be printed during QA testing. Call tech support.
SIA:#14 Err : do diagnostic 2	This message should only be printed during QA testing. Call tech support.
SIA:#15 Err. Passive Client Driver - Client for test only	This message should only be printed during QA testing. Call tech support.
SIA:#16 FYI. Use an Array called	Read Appendix 1.3 Driver Statistics

<%s> to expose diagnostic info.	

Appendix 1.3. Driver Statistics

1.3.1. Exposing Driver Stats

The diver makes some of its operating statistics available in a Data Array where they can be read by a remote client. The lines from the example below can be cut and pasted into a configuration file.

Data_Arrays,		
Data_Array_Name,	Data_Format,	Data_Array_length,
SIA-stats,	UINT32,	1000,

Offset	Description
1	
2	Increments each time an ack is received
3	Increments each time an ack is sent
4	Increments each time a message is received
5	If there was no method 2 storage location this info about the event is stored here. Source
6	If there was no method 2 storage location this info about the event is stored here. Receiver
7	If there was no method 2 storage location this info about the event is stored here. Line Card
8	If there was no method 2 storage location this info about the event is stored here. Partition
9	If there was no method 3 storage location this info about the event is stored here. Source
10	If there was no method 3 storage location this info about the event is stored here. Receiver
11	If there was no method 3 storage location this info about the event is stored here. Line Card

Offset	Description
12	If there was no method 3 storage location this info about the event is stored here. Partition
13	If there was no method 3 storage location this info about the event is stored here. Zone
14	Badly formatted msg received.
15	Increments each time the panel sends a periodic message with no event info. (Panel does this to check that the remote passive client is still present)

Appendix 1.4. Message Formats

String breakdown

S013[#1118|Nri1/QA001^FIRE ALARM ^]09/16/1014:49:34

S - Represent that the message is a SIA string

01 - Receiver number

3 - Line Card number

#1118 - panel account #

Nri1 - New event on partition 1.

QA - SIA Code

001 - Zone is came on

^FIRE ALARM - Description

^09/16/1014:49:34 - Date and Time.

Typical poll to check gateway is present.

31 30 31 30 20 20 20 20 20 20 20 20 20 20 20 40 1010 @
 20 20 20 20 14 .

Revision History

Date	Resp	Format	Driver Ver.	Doc. Rev.	Comment
20 Oct 1010	PMC		1.00a	0	Document Created