FIRE AND SECURITY

AUTRO SAFE
Self Verify®

Interfacing Voyage Data Recorder Systems

AutroSafe VDR Interface BSL-336

CE

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1. Introduction

1.1 About the Handbook

This handbook provides all necessary information required to install and commission the BSL-336 VDR interface for AutroSafe Fire-detection systems.

1.2 The Reader

This handbook is designed for Autronica Fire and Security service personnel, VDR supplier and classification societies.

1.2.1 Reference Documentation

In addition to this handbook, Autronica Fire and Security offers the following documentation:

- 116-P-BSL336/CE Datasheet

1.3 IEC Standard requirements

According to ISO6112-1, the manual is required to contain the following information:
   a) Identification of lines A and B. Re. chapter 4.2
   b) The output-drive capability as a talker. BSL-336 uses standard RS422 integrated circuits. RS422 is by definition identical to ITU-T X.27/V.11
   c) A list of sentences transmitted as a talker. Re chapter 8.1
   d) The load required as a listener. NOT APPLICABLE
   e) A list of sentences required as a listener. NOT APPLICABLE
   f) The current hardware and software version
        a. VDR Converter BSL-336, HW version 3
        b. Software release: 1.00
        Re. chapter 3.1 – 3.2
   g) Electrical description of the talker output. Ref. b) above.
   h) Version number and time of update of the standard for which compliance is sought. Re. chapter 2

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2. Description

The Autronica BSL-336 voyage-data-recorder interface allows AutroSafe series fire-detection panels to be connected to voyage data recorders (VDR), so that information from the fire-detection system is recorded.

The VDR interface is in compliance with:
- IEC 61162-1 and IEC-61162-2 First edition 1998-09 Maritime Navigation and Radio-Communication Equipment and Systems. Second edition, 2000-7
- IEC PAS 61162-102 Extra Requirements for the Voyage Data Recorder. Pre-standard, first edition, 2003-12

2.1 Dimensions

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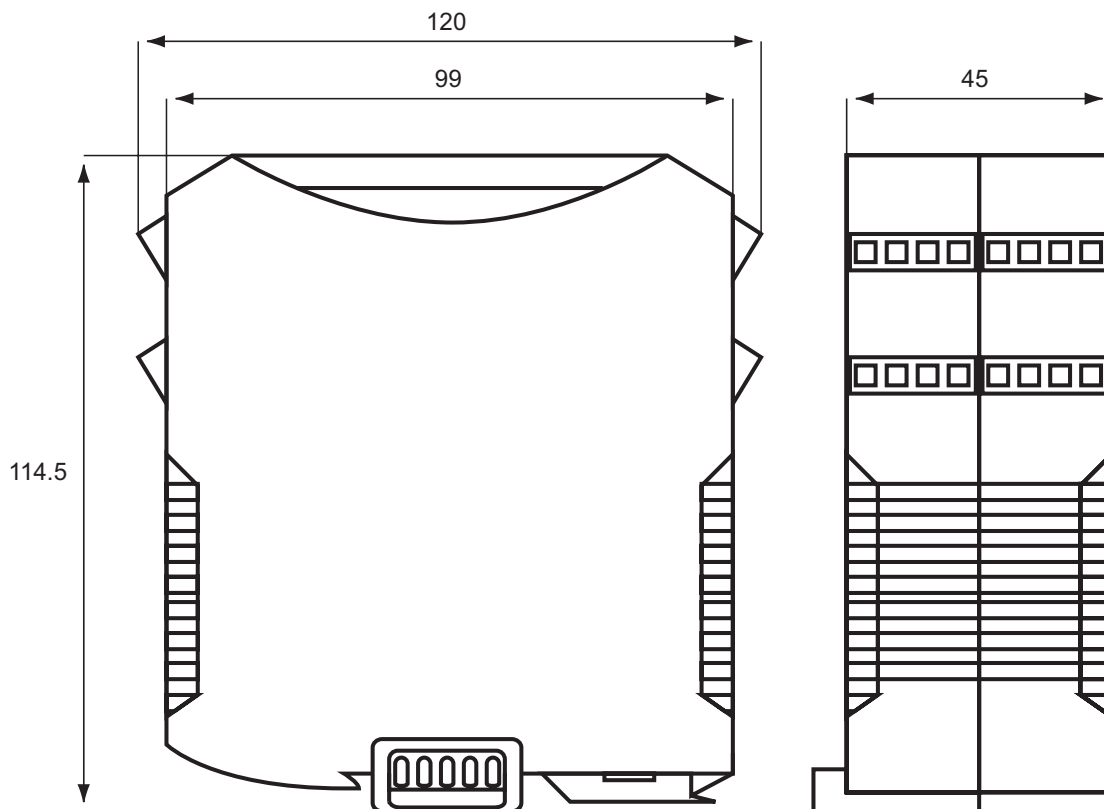
2.2 Specifications

Physical		
Dimensions (mm)	114,5 x 120 x 45 (HxDxW)	
Weight	250g	
Mounting	TS-35 DIN-rail (internally or externally to AutroSafe panels)	
Interface		
Ports	Two asynchronous ports	
VDR-communication	Port 0 38400 baud, 8, N, 1	RS-232/RS-422
AutroSafe communication	Port 1 19200 baud, 8, N, 1	RS-232
Service computer	Service port 115200 baud, 8, N, 1	RS-232
Cable Terminals	Screw connection, maximum 2.5mm^2 cable	
Interface Options		
Port 0 (to VDR)	RS-422 (maximum length 1000m)	
Port 1 (to EAU-321)	RS-232 (maximum length 10m)	
Power		
Power Supply (from AutroSafe)	18–32V DC	
Current Consumption	Typically 150–200mA @ 24V DC	
Environmental		
Operating temperature	–10–+60°C	
Storage temperature	–25–+70°C	
Relative humidity (operating and storage)	10–95%, RH (non-condensing)	
Level of Protection	IP-20	
EMC Compliance		
Emissions	EN 50081-2 (94)	
Immunity	EN 50082-2 (95)	

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2.3 Indicators and buttons

S1=Port 1, S2=Port 0

**Service-Port Connector
(Cable XJA-029)**
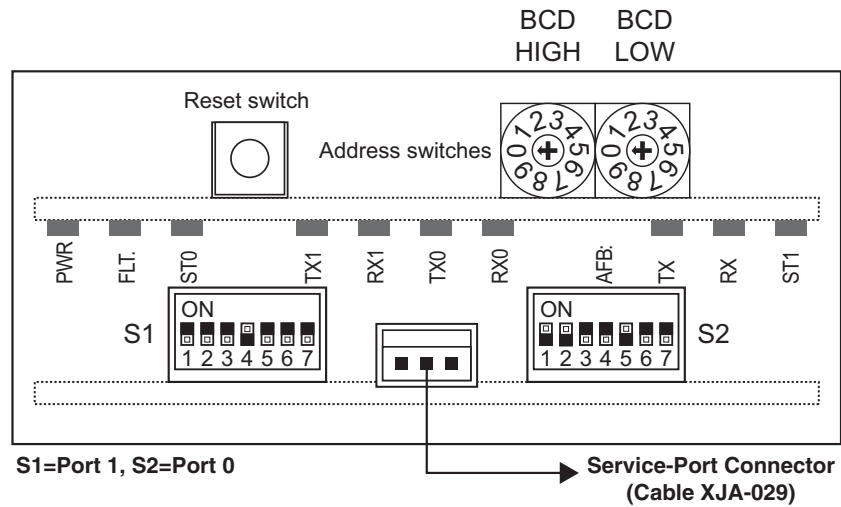
⬚ = Switch in ON position

Name	Colour	Description
PWR	Green	Steady on: Power OK Note: The LED flickers slightly once every second. This is an indication that the software is running.
FLT	Red	Pulsating: Fault The reason for the fault will normally be presented on the AutroSafe display as a fault from BSD-336. The Fault LED will also flash if the AutroSafe communication is lost.
ST0	Yellow	Pulsating: Sending AutroSafe events to VDR. Application level indicator: The BSL-336 queues AutroSafe events, and this LED can be lit continuously in periods with high traffic.
TX1	Green	Pulsating: AutroCom data sent to AutroSafe
RX1	Red	Pulsating: AutroCom data received from AutroSafe. TX1/RX1: As a minimum, there will be communication every 3 seconds with a brief flash in both LEDs.
TX0	Green	Pulsating: NMEA data sent to VDR
RX0	Red	Not in use
AFB TX		Not in use
AFB RX		Not in use
AFB ST1		Not in use
S1		DIP-switches for port 1 (to AutroSafe) (S1.4 ON)
S2		DIP-switches for port 0 (to VDR) (S2.1 – S2.2 – S2.5 ON)

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2.4 Connectors

The plug-in screw terminals are numbered 1 – 32.

Terminal	Function	Terminal	Function
1	NC	17	RX, RS-422_A+, Port 0
2	NC	18	RX, RS-422_B-, Port 0
3	NC	19	TX, RS-422_X+, Port 0
4	NC	20	TX, RS-422_Z-, Port 0
5	NC	21	TX, RS-232, Service Port*
6	NC	22	RX, RS-232, Service Port*
7	NC	23	RS-232, Signal Reference Service Port*
8	NC	24	NC
9	NC	25	TX, RS-232, Port 0
10	NC	26	RX, RS-232, Port 0
11	NC	27	Signal Reference, Port 0
12	NC	28	Instrument Earth, Port 0
13	TX, RS-232, Port 1	29	+24V DC Input
14	RX, RS-232, Port 1	30	0V DC Input
15	Signal Reference Port 1	31	Instrument Earth, common
16	Instrument Earth Port 1	32	Protective Earth, common

* Additional service port connection on 3-pin plug connector by use of service cable XJA-029

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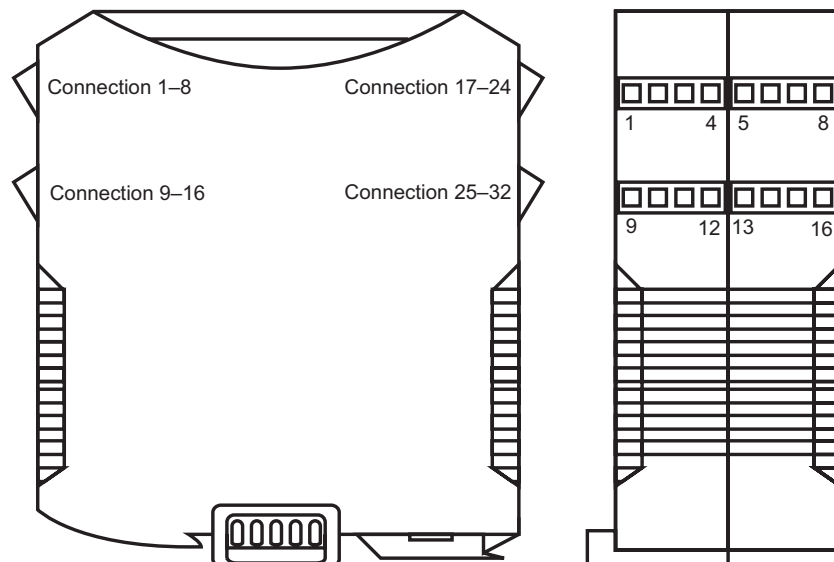
3. Installation

The following system blocks are referred to in this document:

AutroSafe Fire-Alarm Panel	EAU-321 Serial comm..	BSL-336 VDR-converter	VDR

Autronica Interface equipment ⟶
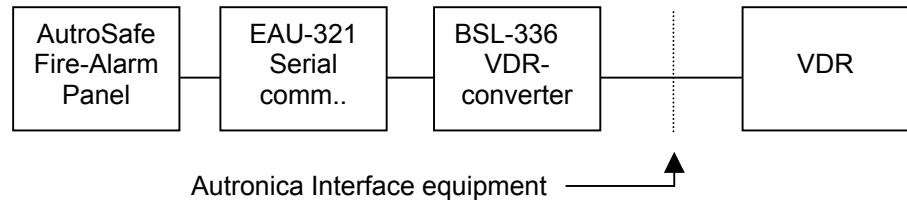
3.1 Pre-Requisites for Installation of BSL-336

- AutroSafe system software version 3.4.1 or later (earlier versions of the system may function, but are not certified for use with BSL-336 by Autronica Fire and Security)
- AutroSafe Serial-Communication Board EAU-321 — port 1 or 2 (See section 3.4 and control the jumper setting in chapter 3.3.1)

3.2 Requirements

- Service computer; to run software
- BSL-336 software CD, contains AutroCom test software and documentation
- Relevant test cables; to connect service computer to BSL-336.
  - XJA-029 (configuration)
  - XJA-037 (control of VDR data)

3.3 Standard Communication Parameters

The BSL-336 is delivered from the factory containing the following communication parameters:
- Port 0, to VDR: 38400 baud, 8 data bit, none parity, 1 stop bit
- Port 1, to AutroSafe: 19200 baud, 8 data bit, none parity, 1 stop bit
- Service port, to service PC: 115200 baud, 8 data bit, none parity, 1 stop bit

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3.4 EAU-321 Serial Communication Board

The BSL-336 requires that the EAU-321 Serial-Port Communications Board is installed in the relevant AutroSafe panel; this allows the AutroSafe panel to communicate with BSL-336 using RS-232 on port 1 or 2.

The EAU-321 Serial-Port Communications Board, when installed, is located as per figure:

Panel front

Processor board

Communications boards:
LON-Interface board EAU-310 (if installed)
Serial-Port Communication Board EAU-321

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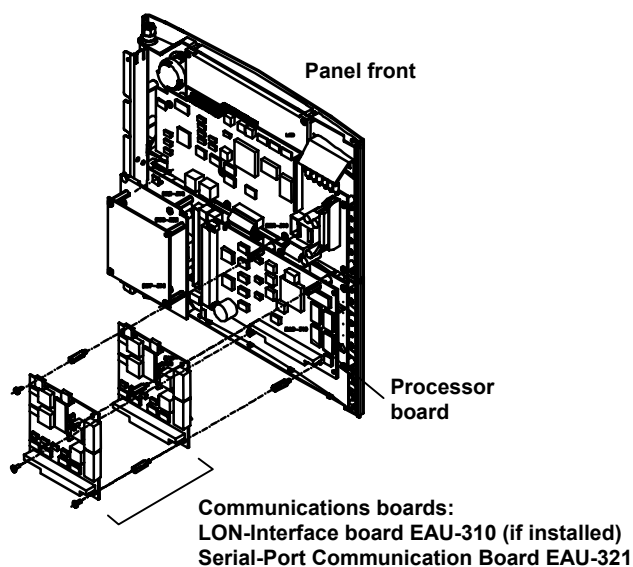
3.4.1 Jumper Settings — EAU-321

Note that J5 determines port 1, and J6 determines port 2; in an application where port 1 is in use by other equipment, then J6 should be set as shown in the diagram, to allow connection of BSL-336.

Important: Note the port used, it is important that the physical port used and the port you configure in the software be in agreement.

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3.4.2 Termination by use of ribbon cable and standard screw terminal block
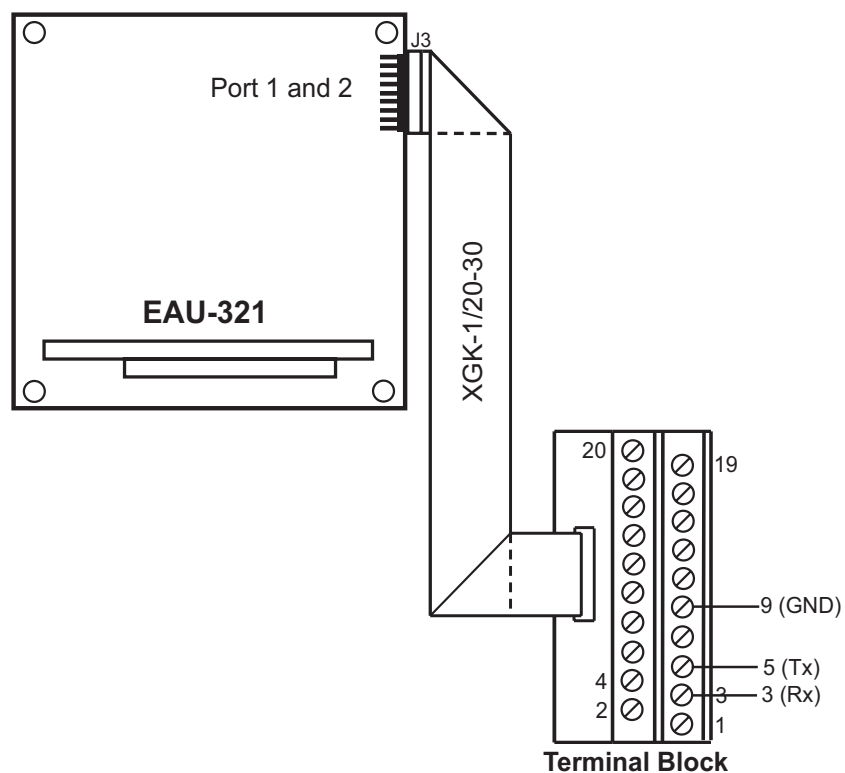
The drawing shows an EAU-321 Port 1-connection. EAU-321 Port 2 may be used with connection terminals 13, 15 and 19.

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3.4.3 Termination by use of cable XBA-055

Ribbon cable XBA-055 can be connected directly to the screw terminal on BSL-336.

Cross section of EAU-321
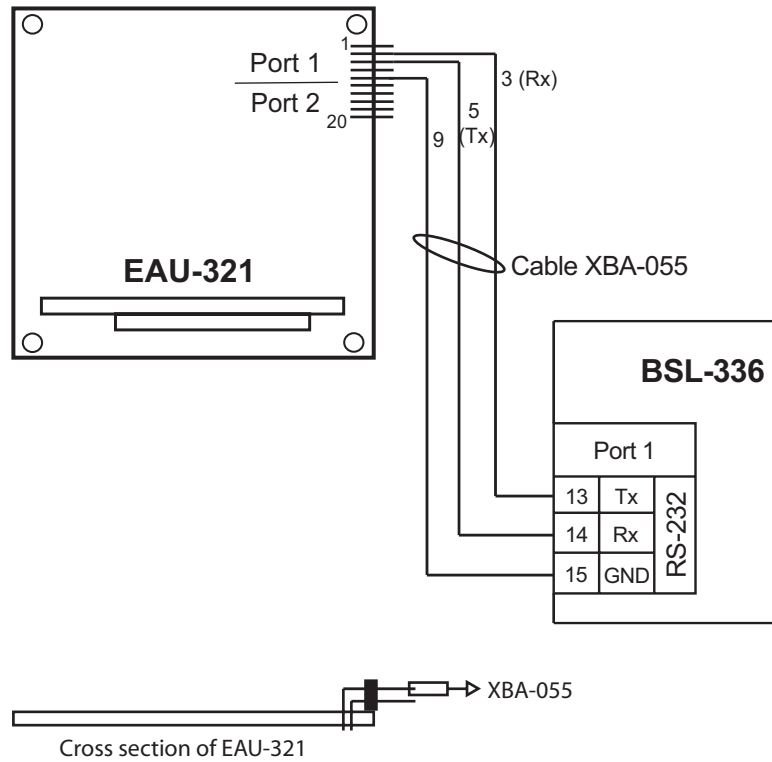
Note: Use the upper row of connection pins on the EAU-321

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4. BSL−336 Installation

BSL-336 may be installed in one of two ways: internally or externally to the panel to which it is connected.

4.1 Two Types of Installation

4.1.1 Panel-Internal Installation

Connect BSL-336 to the relevant port on the installed EAU-321 board. Install the unit directly onto the panel-internal DIN-rail. The module is powered by the internal 24V DC power supply.

4.1.2 Panel-External Installation

The module can also be placed on an external DIN-rail and powered from AutroSafe or with an external 24V DC power supply. Connect the unit to the relevant port on the installed EAU-321 board. RS-232 distance limitations apply — i.e. maximum 10 metres. If longer distances are required, a modem and shielded cable are recommended (port 1 is insulated to prevent ground fault problem).

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4.2 Connections

4.2.1 Power

Important: If you connect the power supply to the wrong terminals, the unit may be damaged. BSL-336 and EAU-321 must be connected to the AutroSafe power supply in the way described in the following figure:
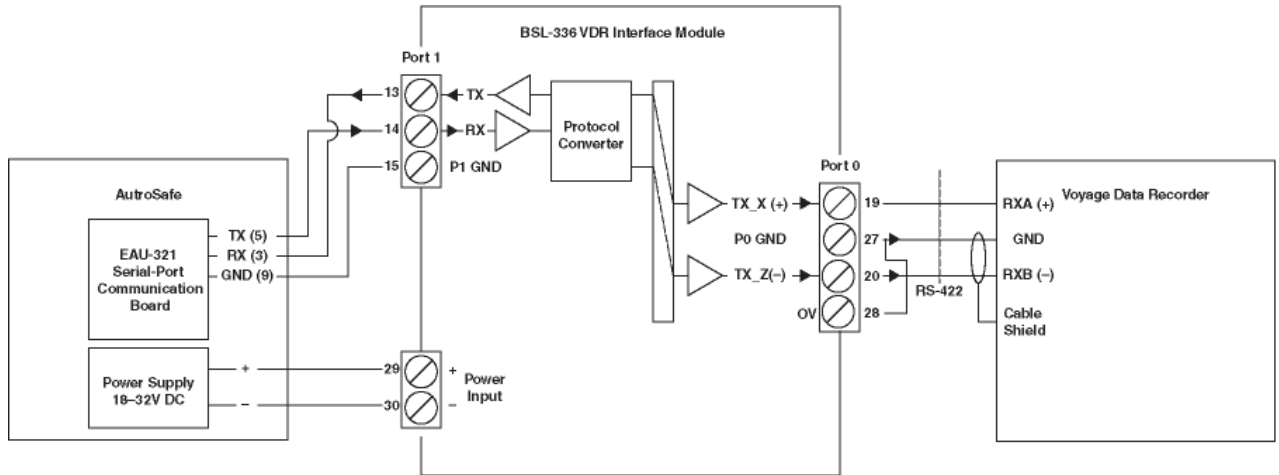
4.2.2 Connection with EAU-321 connection block

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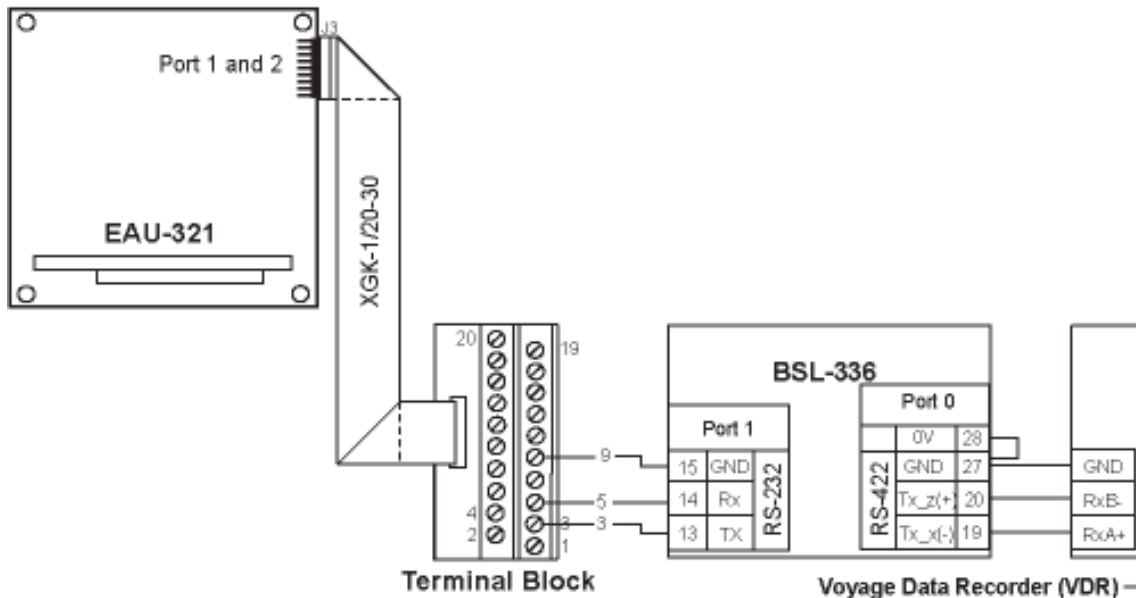
4.2.3 Connection with EAU-321 and cable XBA-055

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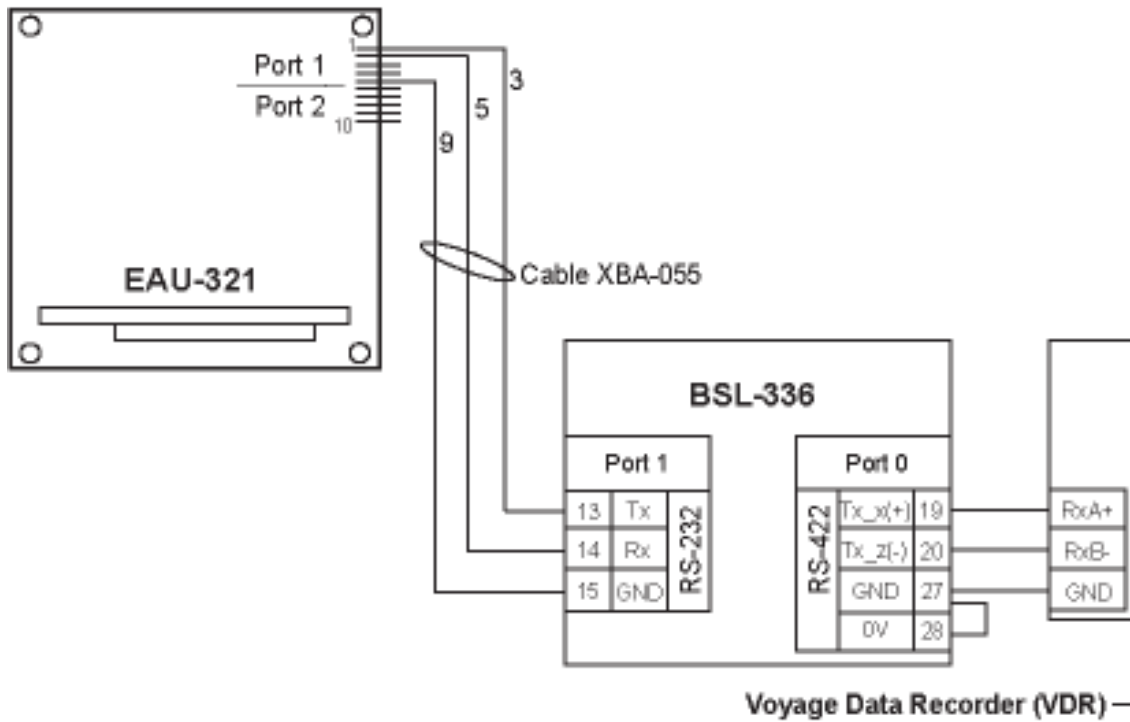
4.3 AutroSafe Configuration

Create installation file by following the procedure outlined below.

```
                    ┌──────────────────────────────┐
                    │  Start AS Configuration Tool  │
                    └──────────────────────────────┘

  ┌──────────────┐    ┌──────────────────────┐    ┌──────────────┐    ┌─────────────────────┐
  │ File>Open…   │ →  │ Choose configuration │ →  │ Click "Open" │ →  │ Graphical view opens│
  │              │    │ file                 │    │              │    │                     │
  │              │    │ (example: ThisSite.ac)│    │             │    │                     │
  └──────────────┘    └──────────────────────┘    └──────────────┘    └─────────────────────┘

  ┌────────────────────────────────────────┐    ┌────────────┐    ┌──────────────────────────┐
  │ Right-click the panel in which EAU-321  │ → │ Choose "Add…" │ → │ "Add Unit(s)" dialogue  │
  │ is installed                            │    │            │    │ opens                    │
  └────────────────────────────────────────┘    └────────────┘    └──────────────────────────┘

  ┌────────────────────────┐    ┌──────────────┐    ┌───────────────────────────────────────────┐
  │ Select "Autrocom Serial"│ → │ Click "Add" │ → │ "Add Unit(s)" dialogue closes; return to   │
  │                        │    │              │    │ graphical view                            │
  └────────────────────────┘    └──────────────┘    └───────────────────────────────────────────┘

                    ┌────────────────────────────────────────┐
                    │ Select AUTROCOM_SERIAL, Autrocom Serial │
                    └────────────────────────────────────────┘
```

Edit properties list to reflect the following:

AutroComPassWord: Local password (9999)
Description: Enter if required
Local Mode Report: Report as communication fault
Serial port on card: Serial port used on EAU-321 for BSL-336 connectivity
Baud rate: 19200
AutroComType Serial: SERIAL_SLIDING_WINDOW
Name: Voyage Data Recorder

```
  ┌────────────────────┐    ┌───────────────────────────────┐
  │ View>Operation Zones│ → │ Operation Zones dialogue opens │
  └────────────────────┘    └───────────────────────────────┘

  ┌────────────────────────────────┐    ┌────────────────┐    ┌───────────────────────────┐
  │ Right-click topmost Operation Zone│ → │ Select "Connect…" │ → │ Connect Unit dialogue opens│
  └────────────────────────────────┘    └────────────────┘    └───────────────────────────┘

  ┌────────────────────────────────┐    ┌───────────────────────────────────┐    ┌──────────────┐
  │ In left pane, select "Autrocom  │ → │ In right pane, select "Serial      │ → │ Click "Connect"│
  │ Serial"                         │    │ Interface for VDR Unit"            │    │              │
  └────────────────────────────────┘    └───────────────────────────────────┘    └──────────────┘

                    ┌──────────────┐
                    │  Save file   │
                    └──────────────┘
```

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5. Important Considerations

5.1 Naming Conventions

We suggest that the point tag names, zone names, etc. used in the AutroSafe configuration are systematized to simplify the task of reading VDR data. We suggest that the following schema be used:

- Point tag defines electrical location (for example, node/loop/loop unit)
- Detection zone defines geographical location (for example, zone/floor/room/etc.)

This system allows the VDR to record data in a readable way, recording fire alarms from detectors with the point tag and detection-zone name. Note that the following limitations are in place:

- AutroSafe limits:
    - Point tags to 24 characters
    - Detection-zone names to 34 characters

- The "description field" in the string sent to the VDR is limited to 44 characters

Obviously, if a point tag and detection-zone name are filled to their maximum number of characters, some information may be lost in the string transmitted to the VDR unit; it is therefore recommended that the tag and detection zone names be kept as short as possible.

This is not problematic because the string transmitted to the VDR is structured so that an alarm from a detector will be shown with both point-tag name and the detection-zone name; this means that the detection-zone information will always be present in the log, even if the detection-zone name is 34 characters in length.

The "description text" field in the FIR sentence contains 44 characters. The point-tag name contains maximum 24 characters, and the detection-zone name contains maximum 34 characters (spaces at the end of the texts are removed). Parts of the detection-zone name may be lost if both names are long. Note that the detector event will be followed by a detection-zone event, and that this detection-zone event contains only the detection-zone text (which will always fit in the description text field).

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5.2 Characters, Symbols and Text

The IEC61162-1 (NMEA-0183) defines the following reserved characters, which should be avoided in AutroSafe names (replacement text can be found in the column to the right):

Reserved Characters				
	HEX	**Description**	**Replaced by**	
$	0x24	Start of string delimiter	S	0x53
*	0x2A	Checksum field delimiter	#	0x23
,	0x2C	Field delimiter	;	0x3B
!	0x21	Reserved for future use	I	0x49
\	5C	Reserved for future use (\ in AutroSafe is Norwegian ∅)	O	0x4F
^	5E	Code delimiter for HEX representation of ASCII characters (^ in AutroSafe is Swedish Ä)	A	0x41
~	7E	Reserved for future use (~ in AutroSafe is Swedish ä)	a	0x61

In addition, ";" (semicolon) is a reserved character in AutroCom and must be avoided in AutroSafe name texts.

5.3 AutroSafe Configuration

The following sections detail configuration details for AutroSafe; following these guidelines will ensure that all relevant data will be logged to the VDR.

5.3.1 Fire-Door Setup

Because maritime applications require variant setups for fire doors, certain fire-door events may not be logged by the fire-alarm system and cannot be transmitted to VDR.

The VDR logs all movements of fire doors handled by BN-320/2, including faults reported because the door has not closed within the pre-set time limit.

In some "watertight" applications, the fire door is normally open and BN-320/2 is solely used to monitor a fire door (an external system is responsible for closing the door). In such applications, AutroSafe will not register a fault if the door remains open; consequently, no error will be transmitted to the VDR.

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5.3.2 AutroSafe Time

VDR strings include a timestamp in the format hhmmss (hour-minute-second); standards compliance requires that this timestamp be in UTC (universal co-ordinated time). As BSL-336 is synchronized with the AutroSafe clock, it is important that AutroSafe is configured to use UTC, not the local, ship time zone.

5.4 Ensuring VDR Compatibility

5.4.1 NMEA Strings

Engineers installing the BSL-336 VDR interface should send a copy of this manual to the VDR supplier to ensure that the NMEA strings transmitted by the BSL-336 unit are understood and managed by the particular VDR in question.

5.4.2 VDR Baud Rate

Additionally, the VDR supplier should supply a baud rate for transmissions from BSL-336 to the VDR unit.

NMEA-183 standard baud rate: 4800
NMEA-new standard baud rate: 38400

BSL-336 can be configured to support any current standard NMEA baud rate (as well and many non-standard baud rates).

Factory-set baud rates are:
Port 1: BSL-336/AutroSafe: 19200
Port 0: BSL-336/VDR: 38400
Service Port: Service PC: 115200

5.4.3 Status Update

BSL-336 sends a complete status update every 120 minutes (factory setting). Frequency of status update is configurable.

NOTE: Some ships have a presentation system (PC) connected to the VDR to show near-real time status. In these cases, the BSL-336 should be configured to send status updates e.g. every ten minutes.

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6. Configuring BSL‑336

6.1 Settings on the Panel Front

= Switch in ON position
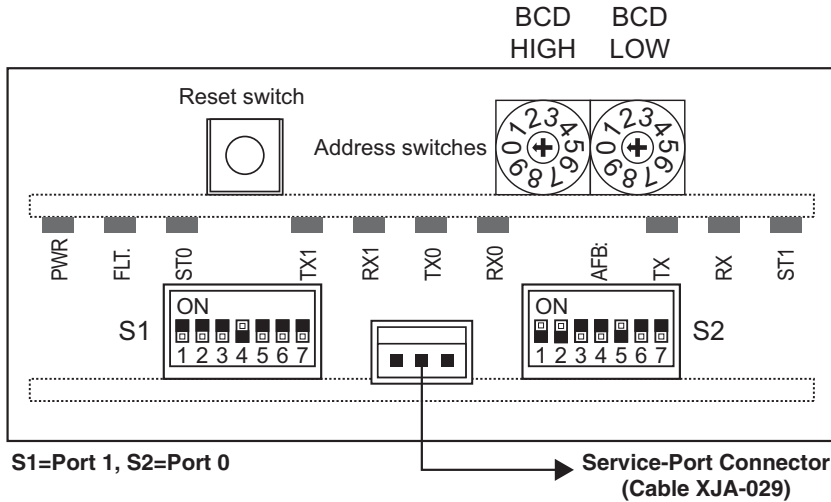
The DIP-switches and rotary switches should be set as shown in the figure:
S1.4 ON
S2.1 – S2.2 – S2.5 ON
Rotary switch 0

6.2 Service-Computer-Based Configuration

The BSL-336 has very few configurable settings. The simplest way to modify the configuration is to connect a service computer to the BSL-336's service port using a standard AutroSafe Config Download cable (XJA-029), and then run HyperTerminal.

Standard default configuration of BSL-336 is described in chapter 6.4

Communication parameters for the service port is 115200 baud, 8 data bit, no parity, 1 stop bit.

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6.3 The Service port commands

6.3.1 Syntax

The service port accepts commands in the form:
<command> <parameter>:<parameter>…<ENTER>
where

<command> is a single word like "help", not case sensitive
is a number
<ENTER> is the keyboard button labelled ENTER or ↵

Example command:

```
#CfgBaud19200:38400↵
```

Baud rate on port 1 (19200) and port 0 (38400)
Note that the command is followed by the first parameter with no
space in between. The parameter separator is ":" (colon).

6.3.2 List of commands

Type #help to get a list of commands. (The list is somewhat longer
than shown here; as there is also some software debug commands)

```
------------------------------
 Command   Parms Description
------------------------------
#?           0 List Device Status
#Help        0 Help
#rt          0 Reset
#EraseCfg    0 Erase Config in EEPROM
#ShowCfg     0 Show Config from EEPROM
#CfgBaud     2 Set baudrates. P1=AutroCom P2=VDR
#CfgPeriod   2 Set periods.   P1=Alive     P2=Status
#CfgTalker   1 Set TalkerId.  P1=Id 1:fixed 2:seq
#DoAlive     0 Do   5 min action
#DoStatus    0 Do 120 min action
Syntax:  #CmdP1:P2:P3<CR>   Pn can be :1:, :0x01:, :'text':
```

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6.4 #ShowCfg - Show Configuration

The current configuration can be inspected by typing:
`#ShowCfg↵`

```
== Table: Settings. #lines=1
     Line:  1
        AutroComBaud: 19200
        VDR_Baud    : 38400
        AlivePeriod :    4
        StatusPeriod:   120
```

6.5 #EraseCfg - Erase Config

To load default values type:
`#EraseCfg↵`

```
14:04:30.624 MonitorFSM00,st01: NvRAM_Init: No valid Config present
14:04:30.632 MonitorFSM00,st01: NvRAM_Init: Empty config RAM memory
14:04:30.640 NvRAM_Driv00,st04: Start burning EEPROM (area=001B, size=0256)
14:04:30.649 NvRAM_Driv00,st05: NvRAM: Config OK
Burn EEPROM addr 0x21 with 30
...(many "burn" lines)..
14:04:30.818 NvRAM_Driv00,st02: Finished burning EEPROM
```

If you change the baud rate, the BSL-336 software must be restarted; this can be done by typing the command #rt or pressing the RESET button on BSL-336.

6.6 #CfgBaud - Set Baud Rates

The baud rates on both sides of BSL-336 can be modified.
- Parameter 1:
  The **AutroCom baud rate** is, by default, 19200, but may be set to 9600.
- Parameter 2:
  The **VDR baud rate** is, by default, 38400 (newer VDRs), but for older VDRs can use 4800). A higher baud rate gives better performance for fire-detection systems with more than 100 detectors.

The commands
`#CfgBaud19200:38400↵`   new version
`#CfgBaud19200:4800↵`   old version

The baud rates can be set to any value, independently.

If you change the baud rate, the BSL-336 software must be restarted; this can be done by typing the command `#rt` or pressing the RESET button on BSL-336.

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6.7 #CfgPeriod - Set Reporting Periods

BSL-336 performs VDR logging at preset intervals:
- Parameter 1:
  The VDR requires an "Alive" sentence with intervals max 5 minutes.
  The default value is 4 minutes (resolution 1 minute).
- Parameter 2:
  The VDR requires complete system status periodically.
  The default value is 120 minutes (resolution 1 minute). There must be at least one update within every 12 hours. Do not set the value to be shorter than 5 minutes, as full status in a fire situation generates much traffic

The command

`#CfgPeriod4:120`↵   sets default periods

6.8 #CfgTalker - Set Talker Identification

This is a special option needed by the Broadgate VER3000 VDR: The NMEA "Talker Identification" field can be made unique for every sentence sent within one second. The Id will become AA, AB, AC… up to ZZ.

`#CfgTalker2`↵   P1=1 is fixed "FR", P1=2 is sequential

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7. Testing BSL-336

Some testing is possible using the service-port commands.

7.1 #dm0x10 – Trace AutroCom and VDR Messages

It is possible to see both incoming AutroCom messages, and the resulting VDR log on the service terminal. Switch on trace by typing:

```
#dm0x10↵
```

Each AutroSafe event will then print in the following way:

```
12:24:54.007 AcFormRx  00,st01: RX Message: $2901M05PT1;FC00DZ1;AJC4215DE97;OZ1;
12:24:54.015 AcFormTx  00,st01: TX: USER_TEXT_REQ  $--=M96UPT1;
12:24:54.022 AcFormTx  00,st01: TX: USER_TEXT_REQ  $--=M96UDZ1;
12:24:55.138 AcFormRx  00,st01: RX Message: $2F02M36UPT1;TEST PT1 Name        ;
12:24:55.199 AcFormRx  00,st01: RX Message: $2F03M36UDZ1;TEST DZ1 Name        ;
12:24:55.208 NMEA_Formt00,st02: $FRFIR,E,122455,FD,PT,000,001,A,V,Fire Alarm   : TEST PT1 Name TEST
DZ1 Name*7E
```

To terminate trace type:

```
#dm0↵
```

Do not leave an installation with trace active – it slows the system down during periods of high traffic.

7.2 #DoAlive – Send Alive Event

It is possible to kick off the "Alive" message to the VDR log. Note that the periodic timer is re-started so the next automatic Alive message will appear 4 (configurable) minutes later.

```
#DoAlive↵
```

It will print a line on the screen (or two, if the VDR trace is active):

```
12:40:06.343 PeriodMgr 00,st01: Periodic: Alive. Next Status 105(0x69)
12:40:06.351 NMEA_Formt00,st02: $FREVE,124006,Sm00002,======Alive: Communication
OK=====*77
```

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7.3 #DoStatus – Send Periodic System Status

It is possible to kick off a complete system status to the VDR log. Note that the periodic timer is re-started so the next automatic system status will appear 120 (configurable) minutes later.

```
#DoStatus↵
```

It will print a line on the screen (or many, if the VDR trace is active):

```
12:46:37.709 PeriodMgr 00,st01: Periodic: System Status
12:46:37.715 AcFormTx  00,st01: TX: UPDATE_STATUS  $--═M91
12:46:37.728 NMEA_Formt00,st02: $FREVE,124637,Sm00003,═════System status: START════════*2D
12:46:37.943 NMEA_Formt00,st02: $FREVE,124637,Sm00003,═════System status: FINISHED════*42
```

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8. Log Strings

8.1 String Definition

The strings follow the standards IEC61162-1 and NMEA0183; some general knowledge of these standards is assumed. BSL-336 uses strings defined in **IEC PAS 61162-102 Extra requirements for the Voyage Data Recorder, Pre-standard First edition 2003-12.**

AutroSafe transmits the following basic strings to the VDR:

String	Meaning	Unused Fields	Event	Alive 5 Minutes	Status 120 Minutes
FIR,E	Fire-alarm event	<none>	X		X
FIR,F	Fire-alarm fault	8	X		X
FIR,D	Fire-alarm disabled	8	X		X
DOR,E	Fire-door event	<none>	X		X
EVE	Operator events, General faults, Periodic status	<none> <none> <none>	X X X	X	X X X
ALA	System fault event	<none>	X		X

8.1.1 Talker Identifier

All strings from the fire-detection system are prefixed by the talker identifier that signifies the fire-detection system:

`$`**`FR`**`FIR,E,112405,FD,PT,000,007,A,V,Fire PreAlarm: TEST PT7 Name TEST DZ2 Name*1D`

`FR` identifies the string as originating from the fire-detection system.

8.1.2 Equipment Indicators/numbers

The various sentences contain fields that describe "division indicator" and "door/detector number". These may contain fire zone, central number, deck number, loop number etc.

The BSL-336 is a simple protocol converter that does not contain topology information. It does not tell which loop each detector is connected to. AutroSafe refers to the hardware using a unique UnitId, namely a two-letter code followed by a sequence number.

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- Type codes can be "PT" for Detector Point, or "FP" for a door (FP for Fire Protection Equipment)
- The number is incremented for each new unit added in the AutroSafe configuration and carries no information except as a unique reference.

The UnitId is very important in a situation where a VDR log event is cross-referenced back into the Fire-Alarm System. The UnitId information is placed in the indicator/number fields.

A UnitId example: PT12345 is laid out as `...,PT,012,345, ...`

Field no	Data form	Field name	Use
4	aa	Division indicator (1)	**UnitId.Type:** Formatted as two alphabetic characters. *See next table for a complete list.* ("PT" in the example)
5	xxx	Division indicator (2)	**UnitId.Number (MSD)** Formatted as three numeric characters. The two most significant digits (12 in the example) with a leading zero
6	xxx	Door number or Fire detector number	**UnitId.Number (LSD)** Formatted as three numeric characters. The three least significant digits (345 in the example)

8.1.2.1 Overview of Unit Types (Division Indicator (1)) — Physical Units and Zones

Unit type	Code	Valid range
Point (smoke/heat/gas detectors)	PT	0x0-0x7ffc
Detection zone (groups of points)	DZ	0x0-0x3ffc
Fire alarm device (bells, sounders)	FD	0x0-0x7fc
Fire protection equipment (doors, fans, etc.)	FP	0x0-0x7fc
Alarm zone (groups of bells)	AZ	0x0-0x3fc
Detector loop	DL	0x0-0x3fc
Basic loop	BQ	0x0-0xfc
Computer	CO	0x0-0xfc
Domain network	DO	0x0-0xfc
Operator panel	OP	0x0-0x1fc
Power	PW	0x0-0xfc
Operation zone (DZs and AZs handled by an operator panel)	OZ	0x0-0xfc
Unit Group	GR	0x0-0xfc
Panel	PA	0x0-0xfc

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8.1.2.2 Overview of Unit Types (Division Indicator (1)) — Internal Software Controllers, Representations

Controller unit type	Code	Valid range
Point	pt	0x0-0xfc
Detection zone	dz	0x0-0xfc
Fire alarm device	fd	0x0-0xfc
Fire protection equipment	fp	0x0-0xfc
Alarm zone	az	0x0-0xfc
Loop	dl	0x0-0xfc
Basic loop	bc	0x0-0xfc
Computer	co	0x0-0xfc
Domain network	do	0x0-0xfc
Operator panel	op	0x0-0xfc
Power	pw	0x0-0xfc
Operation zone	oz	0x0-0xfc
Log	lc	0x0-0xfc
Router	rt	0x0-0xfc

8.1.2.3 Example VDR log

A detector reports smoke. The Fire-Alarm System activates alarm bells and outputs:

```
$FRFIR,E,103000,FD,PT,000,007,A,V,Fire PreAlarm: TEST PT7 Name TEST DZ2 Name*1D
$FRFIR,E,103002,FD,PT,000,007,A,V,Fire Alarm  : TEST PT7 Name TEST DZ2 Name*78
$FREVE,103002,DZ00002,Fire Alarm On: TEST DZ2 Name*0F
$FREVE,103002,AZ00003,Zone Evacuate: TEST AZ3 Name*6F
$FREVE,103002,FP00013,Outp On     : TEST FPD Name*0C
$FREVE,103002,FP00006,Outp On     : TEST FP6 Name*7A
$FREVE,103002,FP00003,Outp On     : TEST FP3 Name*7A
```

The panel operator presses SILENCE:

```
$FREVE,103020,OZ00001,Oper Silence : TEST OZ1 Name*36
$FREVE,103020,DZ00002,Fire AlACK On: TEST DZ2 Name*38
$FREVE,103020,OZ00001,Oper Silence : TEST OZ1 Name*36
$FREVE,103020,AZ00003,Zone Silenced: TEST AZ3 Name*64
```

The panel operator presses RESET:

```
$FREVE,103025,OZ00001,Oper Reset Sy: TEST OZ1 Name*17
$FREVE,103031,AZ00003,Zone Off     : TEST AZ3 Name*34
$FREVE,103031,FP00013,Outp Off     : TEST FPD Name*42
$FREVE,103031,FP00006,Outp Off     : TEST FP6 Name*34
$FREVE,103032,FP00003,Outp Off     : TEST FP3 Name*37
$FREVE,103035,OZ00001,Oper Reset Sy: TEST OZ1 Name*16
```

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8.1.3 ALA —System Faults

ALA strings report faults at system level; in the case of BSL-336 – a standalone protocol converter, the only conditions that are reported are related to AutroSafe communication.

`$FRALA, hhmmss, aa, aa, xx, xxx, a, a, c-cc`

Field no	Data form	Field name	Definition
0	$FRALA	Header	
1	hhmmss	Event time	The time is based on the AutroSafe clock. If the BSL-336 has had no communication with AutroSafe, the clock starts from 00:00:00.
2	aa	System indicator	"FR" (the BSL-336 reports a problem on behalf of itself, the "FR" talker)
3	aa	Sub-system	"OT" for "other".
4	xx	Number of equipment	00
5	xxx	Number of alarm source	901 – AutroSafe communication fault
6	a	Alarm condition	N – Normal state (OK) H – Alarm state (fault)
7	a	Alarm's ACK state	V – Not acknowledged
8	c—c	Alarm's description text	The description text tells if this is "fault" or "OK"

Example:

```
$FRALA,143935,FR,OT,00,901,H,V,Syst Fault   : AutroSafe comm. FAULT*01
$FRALA,143955,FR,OT,00,901,N,V,Syst Fault   : AutroSafe comm. OK*4F
```

8.1.4 DOR — Door Status Detection

The DOR string is used to identify events reported by AutroSafe BN-320/2 Door-Control Units. BN-320/2 has two status outputs — Open and Closed, which indicate the position of the door. The unit can be used either as a monitoring and control device, where it monitors door position and triggers door release, or as a simple monitoring device (for example, for watertight and hull doors); in the latter case, it is necessary that the release relay be activated when external door release systems are activated, so that faults caused by non-closing doors are logged to the VDR.

8.1.4.1 Door Status

BN-320/2 has status Normal, if the door is *not activated* by AutroSafe, and the door position is *Open*. Periodic status reports include all doors with status Not Normal.

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8.1.4.2 Timing (Configurable in AutroSafe, per Door Unit)

A status change in a non-activated door is reported within 15 seconds.

A status change in an activated door is typically reported in 2 minutes. The purpose of the delay is to allow personnel to pass through closed fire doors without causing a fault message on the fire-alarm panel.

Please be aware of these delays if you are testing fire doors.

```
$FRDOR, a, hhmmss, aa, aa, xxx, xxx, a, a, c--c
```

Field no	Data form	Field name	Definition
0	$FRDOR	Header	
1	a	Message type	E – Event
2	hhmmss	Event time	The time is based on the AutroSafe timestamp of the event. For periodic status, the timestamp is the original time of the event.
3	aa	System indicator	FD – Fire Door (this is the only value used in this field, even if the installation also monitors other types of doors)
4	aa	Division indicator (1)	AutroSafe UnitId.Type: "FP" – Fire Protection Equipment
5	xxx	Division indicator (2)	UnitId.Number (MSD)
6	xxx	Door number	UnitId.Number (LSD)
7	a	Door status	O – Open C – Closed
8	a	Mode switch setting	O – Harbour mode (allowed open) C – Sea mode (ordered closed)
9	c--c	Message's description text	The text contains three parts: "Door" <status :>, see below Unit text from AutroSafe config.

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Examples:

```
$FRDOR,E,233042,FD,FP,000,010,O,O,Door Open    : TEST FPA Name*6B
$FRDOR,E,233042,FD,FP,000,010,O,O,Door Trans(NA: TEST FPA Name*22
$FRDOR,E,233042,FD,FP,000,010,C,O,Door Closd(NA: TEST FPA Name*23
$FRDOR,E,233042,FD,FP,000,010,O,C,Door Open (Ac: TEST FPA Name*4D
$FRDOR,E,233042,FD,FP,000,010,O,C,Door Trans(Ac: TEST FPA Name*03
$FRDOR,E,233042,FD,FP,000,010,C,C,Door Closed  : TEST FPA Name*6D
```

Explanation of the Description Text:

Description text	Door position	Activated by AutroSafe	Comment
Door Open :	Open	Not Activated	
Door Trans(NA:	In transition	Not Activated	
Door Closd(NA:	Closed	Not Activated	
Door Open (Ac:	Open	Activated (ordered closed)	
Door Trans(Ac:	In transition	Activated (ordered closed)	Occurs after a long delay
Door Closed :	Closed	Activated (ordered closed)	

Note:
An activated door that is still open after the configured delay is reported as a technical alarm (fault); this fault is logged as type EVE to the VDR, as AutroSafe doesn't distinguish FPE (Fire-Protection Equipment) type information in fault messages. Example:

Example:

```
$FREVE,232535,FP00010,Unit Fault   : TEST FPA Name C;0; Door not closed*
```

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8.1.5 EVE — General Event Message

The EVE string is used to report all events that cannot be described by the FIR and DOR strings.

```
$FREVE, hhmmss, c--c, c--c
```

Field no	Data form	Field name	Definition
0	$FREVE	Header	
1	hhmmss	Event time	The time is based on AutroSafe's timestamp of the event. For periodic status, the timestamp is the original time of the event.
2	c--c	Tag code	AutroSafe UnitId Two characters UnitId.Type followed by 5 digits UnitId.Number.
3	c--c	Event text	The text contains three parts: 　　　　<Unit> 　　　　<status :> 　　　　Unit text from AutroSafe config.

8.1.5.1 Statuses reported with EVE

Detection-Zone Events

One or more detectors are grouped in a Detection Zone. Reporting to the fire-alarm panel, and activation of Alarm Zones and Fire Protection Equipment depends on a DZ's activation state. The activation state can be configured to depend on several detectors ("coincidence"), and/or operator-started delays.

A DZ event (EVE) will occur immediately after a detector point event (FIR). The DZ event will explain why a detected fire didn't cause bells ringing immediately.

Description text	DZ actions	Comment
Fire Alarm On:	DZ actions active now	
Fire Alarm Of:	DZ actions turned off	
Fire Alarm T1:	Delayed action, timer T1	"Land" delayed, and SOLAS
Fire Alarm T2:	Delayed action, timer T2	
Fire Alarm Bl:	Blocked	SOLAS
Fire Alarm S1:	Delayed action, timer T1	Silent alarm (delayed/coincidence)
Fire Alarm S2:	Delayed action, timer T2	Small alarm (delayed/coincidence)
Fire Alarm Wc:	Wait confirm	(Coincidence)

```
$FREVE,000001,DZ00513,Fire Alarm On: TEST DZ201 Name*0A
$FREVE,000001,DZ00514,Fire Alarm T2: TEST DZ202 Name*49
$FREVE,000001,DZ00515,Fire Alarm T1: TEST DZ203 Name*4A
$FREVE,000001,DZ00516,Fire Alarm Bl: TEST DZ204 Name*05
$FREVE,000001,DZ00517,Fire Alarm T1: TEST DZ205 Name*4E
$FREVE,000001,DZ00518,Fire Alarm S2: TEST DZ206 Name*46
$FREVE,000001,DZ00519,Fire Alarm S1: TEST DZ207 Name*45
$FREVE,000001,DZ00520,Fire Alarm Wc: TEST DZ208 Name*16
$FREVE,000001,DZ00521,Fire Alarm Of: TEST DZ209 Name*0B
```

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Operator Events connected to Detection Zones

The AutroSafe panel allows users to acknowledge early warnings and pre-alarms, these events are logged as EVE strings related to a detection zone (because acknowledge operates at the level of detection zone, not individual point).

In addition, the SILENCE button implicitly accepts alarms.

Description text	Function	Comment
Fire ElyWrACK:	Early Warning acknowledge	
Fire PreAlACK:	Pre-Alarm acknowledge	
Fire AlACK On:	Alarm acknowledge	Note: Alarm ACK is reported in combination with the current DZ activation state. See the previous paragraph.

```
$FREVE,000001,DZ00527,Fire ElyWrACK: TEST DZ20F Name*14
$FREVE,000001,DZ00529,Fire PreAlACK: TEST DZ211 Name*73
$FREVE,000001,DZ00522,Fire AlACK On: TEST DZ20A Name*4F
$FREVE,000001,DZ00523,Fire AlACK T1: TEST DZ20B Name*09
$FREVE,000001,DZ00524,Fire AlACK S2: TEST DZ20C Name*0B
```

Fault reports

AutroSafe reports faults using two parameters *Class* and *Reason*; the VDR log shows numeric values for both of these, but due to space considerations, only the reason text is included. If a fault text is needed, the class/reason numbers can be cross-referenced with the AutroSafe Configuration Tool's Menu Config.

Fault reports exist as either "Unit Fault" or "Zone Fault"; there is no functional difference between the two fault types, the difference is included to facilitate readability.

Description text	Functionality	Comment
Unit Fault :	The first occurrence of a fault	
Unit FaultACK:	A panel operator has accepted an existing fault	
Unit FaultOK :	The system has determined that a Fault has been repaired.	When the operator presses the panel's RESET button all faults are accepted. If the faults are still present they may be re-reported from the hardware units involved.
Unit FaultOKn:	The system has determined that a Fault has been repaired, but the operator has not yet accepted it.	Depending on Config, some faults will be removed from the panel without prior accept.

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The hexadecimal numbers found between the "name" and the "reason" texts are class and reason codes, both terminated by semicolons.

```
$FREVE,112600,DZ00002,Zone Fault   : TEST DZ2 Name 9;F; TEST Reason Details*3A
$FREVE,112600,DZ00002,Zone FaultACK: TEST DZ2 Name 9;F; TEST Reason Details*53
$FREVE,112600,DZ00002,Zone FaultOK : TEST DZ2 Name 9;F; TEST Reason Details*3E
$FREVE,112600,DZ00002,Zone FaultOKn: TEST DZ2 Name 9;F; TEST Reason Details*70
$FREVE,233006,FP00010,Unit Fault   : TEST FPA Name C;0; TEST Reason Details*5E
$FREVE,233006,FP00010,Unit FaultACK: TEST FPA Name C;0; TEST Reason Details*37
$FREVE,233006,FP00010,Unit FaultOK : TEST FPA Name C;0; TEST Reason Details*5A
$FREVE,233006,FP00010,Unit FaultOKn: TEST FPA Name C;0; TEST Reason Details*14
```

Alarm-Zone Events

An alarm zone is a group of bells and sounders. Alarm zones are activated when detectors report alarm.

Description text	Functionality	Comment
Zone Alert :	Bells ringing – warning pattern	There is a fire in a neighbour zone
Zone Evacuate:	Bells ringing – alarm pattern	There is a fire in this zone
Zone Silenced:	Bells silent – operator SILENCE	May be re-sounded
Zone Off :	Bells silent – operator RESET	System in quiescent

```
$FREVE,103002,AZ00003,Zone Alert   : TEST AZ3 Name*35
$FREVE,103002,AZ00003,Zone Evacuate: TEST AZ3 Name*6F
$FREVE,103002,AZ00003,Zone Silenced: TEST AZ3 Name*64
$FREVE,103002,AZ00003,Zone Off     : TEST AZ3 Name*34
```

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Fire-Protection-Equipment Events

BSL-336 allows reports from output equipment connected to AutroSafe to be logged; these devices return reports when they are activated or de-activated, or if a change is detected in a monitoring input. Note that door-control units (BN-320/2) are not reported as EVE events, but as DOR events.

AutroSafe automatically activates an output, or an operator manually activates an output. Un-monitored units are logged as ON and OFF when they are ordered to act.

Description text	Functionality	Comment
`Outp Off      :`	Monitoring input OFF	Not activated
`Outp On (NAct:`	Monitoring input ON	Not activated
`Outp Off (Act:`	Monitoring input OFF	Output activated
`Outp On       :`	Monitoring input ON	Output activated
`Outp state HF:`	Special unit status. Must be interpreted by Autronica staff.	(The two letters just before the colon are copied from the AutroCom OP_EqStatusMsg)
`Outp Unknown :`	Unknown	State unknown due to Disablement or Fault.

Operator-Action Event

When an operator affects changes on the fire-alarm panel the BSL-336 will not be informed directly. Rather, the effect of the operator actions is seen as changed status on various units/zones. Some operator actions that relate to Operation Zones are logged directly.

Description text	Functionality	Comment
`Oper Silence :`	Silences bells/sounders	SILENCE button
`Oper SilenceD:`	Silences bells/sounders, and Delays actions	
`Oper Reset Sy:`	Resets alarms and accepts faults.	RESET button
`Oper Reset Al:`	Resets alarms, but does NOT accept faults.	
`Test ...`	Various system test functions, started by the panel's Service menu.	

```
$FREVE,000001,OZ00001,Oper Silence : TEST OZ1 Name*37
$FREVE,000001,OZ00001,Oper SilenceD: TEST OZ1 Name*53
$FREVE,000001,OZ00001,Oper Reset Sy: TEST OZ1 Name*13
$FREVE,000001,OZ00001,Oper Reset Al: TEST OZ1 Name*14

$FREVE,143939,DZ00004,Test SelfVeri: TEST DZ4 Name*42
$FREVE,143939,DZ00004,Test SelfTest: TEST DZ4 Name*5C
$FREVE,143939,DZ00004,Test Service : TEST DZ4 Name*2B
$FREVE,143939,DZ00004,Test Zone    : TEST DZ4 Name*68
$FREVE,143939,DZ00004,Test Point   : TEST DZ4 Name*3A

$FREVE,143939,DZ00004,Test Finished: TEST DZ4 Name*64
```

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Disablement and Enablement Events

AutroSafe allows equipment to be disabled; disabled units do not report events (alarms or faults), nor will disabled control devices perform actions (ring alarms, close doors). Disabled zones disable the functionality of the equipment included in the zone.

Disabled Operation Zones are said to be in "day" mode of the function "day/night". In this case, the zone is configured to delay or block fire alarms being presented to the public — the alarm is only presented on the panel display, so that the information is relayed to fire-safety personnel.

Description text	Comment
`Unit Disabled:`	Unit passive
`Unit Enabled :`	Unit active (normal)
`Zone Disabled:`	Zone passive
`Zone Enabled :`	Zone active (normal)

```
$FREVE,000001,DL00259,Unit Disabled: TEST DL103 Name*7E
$FREVE,000001,DL00260,Unit Enabled : TEST DL104 Name*26
$FREVE,000001,DZ00261,Zone Disabled: TEST DZ105 Name*6B
$FREVE,000001,DZ00262,Zone Enabled : TEST DZ106 Name*3E
```

Detector-Inhibition Events

An inhibited detector reports alarms to the fire-alarm panel, but does not raise an alarm, or cause actions in alarm zones or fire-protection equipment. (Inhibit is typically used in gas-detection systems.)

Description text	Functionality
`Ctrl Inhibitd:`	Automatic control actions inhibited
`Ctrl Allowed :`	Automatic control actions allowed

```
$FREVE,000001,PT00001,Ctrl Inhibitd: TEST PT1 Name*70
$FREVE,000001,PT00001,Ctrl Allowed : TEST PT1 Name*35
```

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8.1.6 FIR – Fire Detection

FIR strings identify alarms, faults and disablements related to detectors. Three identifiers relate the three states identified by FIR strings, these are:
- E: Event, fire alarm
- F: Fault
- D: Disablement

These identifiers will always follow the FIR identifier in the following format:
- FIR, E
- FIR, F
- FIR, D

```
$FRFIR, a, hhmmss, aa, aa, xxx, xxx, a, a, c--c
```

Field no	Data form	Field name	Definition
0	$FRFIR	Header	
1	a	Message type	E – Event, Fire Alarm F – Fault D – Disablement
2	hhmmss	Event time	The time is based on the AutroSafe timestamp of the event. For periodic status, the timestamp is the original time of the event.
3	aa	System indicator	Detector type, see table below
4	aa	Division indicator (1)	AutroSafe UnitId.Type: "PT" – Detector Point
5	xxx	Division indicator (2)	UnitId.Number (MSD)
6	xxx	Fire detector number	UnitId.Number (LSD)
7	a	Condition	A – Activation V – Non-activation X – State unknown
8	a	Alarm's acknowledge state	A – Acknowledged (*not used here*) V – Not acknowledged
9	c--c	Message's description text	The text contains Four parts: "Fire" <status :>, see below Unit text from AutroSafe config DZ text from AutroSafe config or, in the case of Faults, Unit text from AutroSafe config Reason text

Re fields 1, 7 and 8:
The IEC 61162-102 document says nothing about the combination of field 1 (event) and field 7 (condition). AutroSafe use field 7 and 8 to show detector alarm status.

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Message type	Condition, Acknowledge	Comment
E – event, Fire Alarms	A,V	There is no condition V "non-activation" for fire alarms. Non-activation is implicit in an "Operator RESET" event. "Acknowledged" occurs only on Detection Zone level.
F – Fault	X,,	Detector state unknown
D - Disablement	X,,	Detector state unknown

Note that even if events FIR,F and FIR,D contain "unknown" detector status, a separate FIR,E event will follow that has an updated detector status (if the detector is non-normal).

Field 3, Detector types:
The detector types defined for AutroSafe 3.5 have been mapped to the following codes.
If it's important to know the exact type of detector, use the UnitId and cross-reference to the AutroSafe Configuration Handbook.

ID	Comment
FD	Generic fire detector
FH	Heat detector
FS	Smoke detector
FD	Smoke and heat detector
FM	Manual call point
GD	Any gas detector
GO	Oxygen gas detector
GS	Hydrogen sulphide gas detector
GH	Hydro-carbon gas detector
SF	Sprinkler flow switch
SV	Sprinkler manual valve release
CO	CO_2 manual release
OT	Other

Field 7, description text:

Description text	Comment
Fire EarlyWrn:	Early Warning – only on panel display
Fire PreAlarm:	Pre-Alarm – only on panel display
Fire Alarm :	Alarm – activates Alarm Zones (bells) and Fire Protection Equipment

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E – Event

```
$FRFIR,E,103000,FD,PT,000,007,A,V,Fire EarlyWrn: TEST PT7 Name TEST DZ2 Name*01
$FRFIR,E,103000,FD,PT,000,007,A,V,Fire PreAlarm: TEST PT7 Name TEST DZ2 Name*1D
$FRFIR,E,103000,FD,PT,000,007,A,V,Fire Alarm   : TEST PT7 Name TEST DZ2 Name*7A
```

The various detector types (field 3):

```
$FRFIR,E,103000,FD,PT,000,001,A,V,Fire Alarm   : TEST PT1 Name TEST DZ2 Name*7A
$FRFIR,E,103000,FS,PT,000,002,A,V,Fire Alarm   : TEST PT2 Name TEST DZ2 Name*6D
$FRFIR,E,103000,FH,PT,000,006,A,V,Fire Alarm   : TEST PT6 Name TEST DZ2 Name*76
$FRFIR,E,103000,FM,PT,000,010,A,V,Fire Alarm   : TEST PTA Name TEST DZ2 Name*03
$FRFIR,E,103000,GH,PT,000,016,A,V,Fire Alarm   : TEST PT10 Name TEST DZ2 Name*41
$FRFIR,E,103000,GD,PT,000,020,A,V,Fire Alarm   : TEST PT14 Name TEST DZ2 Name*4C
$FRFIR,E,103000,GS,PT,000,023,A,V,Fire Alarm   : TEST PT17 Name TEST DZ2 Name*5B
$FRFIR,E,103000,SF,PT,000,025,A,V,Fire Alarm   : TEST PT19 Name TEST DZ2 Name*52
$FRFIR,E,103000,OT,PT,000,027,A,V,Fire Alarm   : TEST PT1B Name TEST DZ2 Name*25
```

F – Fault
The Fault events are explained under the EVE sentence, see page 33.

```
$FRFIR,F,112600,FD,PT,000,007,X,,Fire Fault   : TEST PT7 Name 9;1; TEST Reaso*60
$FRFIR,F,112600,FD,PT,000,007,X,,Fire FaultACK: TEST PT7 Name 9;1; TEST Reaso*09
$FRFIR,F,112600,FD,PT,000,007,X,,Fire FaultOK : TEST PT7 Name 9;1; TEST Reaso*64
$FRFIR,F,112600,FD,PT,000,007,X,,Fire FaultOKn: TEST PT7 Name 9;1; TEST Reaso*2A
```

D – Disablement
The Disablement events are described under the EVE sentence, see page 32.

```
$FRFIR,D,000001,FS,PT,000,257,X,,Fire Disabled: TEST PT101 Name TEST DZ1 Name*60
$FRFIR,D,000001,FS,PT,000,258,X,,Fire Enabled : TEST PT102 Name TEST DZ1 Name*39
```

8.1.7 Periodic Report

8.1.7.1 Alive

The VDR expects to receive information from the fire-alarm system with max 5-minute intervals (BSL-336 default 4 minutes). The BSL-336 sends an EVE sentence for this purpose, where the event text field identifies the fire-alarm system as "alive". The periodic message does also contain the status of the communication with AutroSafe.

```
$FREVE,143539,Sm00002,======Alive: Communication OK=====*7F
$FREVE,143542,Sm00002,======Alive: Communication OK=====*73
$FREVE,143543,Sm00002,======Alive: Communication OK=====*72
$FREVE,143633,Sm00002,======Alive: Communication OK=====*76
```

8.1.7.2 System status

The IEC 61162-102 document requires the fire-alarm system to make a full system status every 30-120 minutes (BSL-336 default 120 minutes), in order to log a complete status from the fire-alarm system within the VDR even when the VDR log is overwritten within 12–24 hours. The system status is logged with one line when initiated, and one line when completed. Note that the timestamps of re-reported events are the original time of the event.

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The system status is originally stored inside AutroSafe, and the periodic status makes AutroSafe re-send everything within regular intervals. The information will be ordered by event type, not chronologically. If the BSL-336 re-starts the communication link (software start-up, or communication trouble), it will do a full status update immediately.

Periodic system status:

```
$FREVE,143639,Sm00003,======System status: START========*22
$FRFIR,E,143456,FD,PT,000,001,A,V,Fire Alarm   : TEST PT1 Name TEST DZ1 Name*7A
$FRFIR,F,143522,FS,PT,000,001,X,,Fire Fault   : TEST PT1 Name 6;30; TEST Reas*22
$FRFIR,D,143509,FD,PT,000,001,X,,Fire Disabled: TEST PT1 Name TEST DZ1 Name*7C
$FREVE,143504,FP00001,Outp On     : TEST FP1 Name*7D
$FREVE,143639,Sm00003,======System status: FINISHED=====*4D
```

Communication fault/repair:

```
$FREVE,143643,Sm00002,======Alive: Communication OK=====*71
$FREVE,143645,Sm00002,======Alive: Communication OK=====*77
$FRALA,143726,FR,OT,000,901,H,V,Syst Fault   : AutroSafe comm. FAULT*3D
$FREVE,143732,Sm00002,======Alive: Communication FAULT==*05
$FREVE,143735,Sm00002,======Alive: Communication FAULT==*02

$FREVE,143740,Sm00003,======System status: START========*2D
$FRFIR,E,143456,FD,PT,000,001,A,V,Fire Alarm   : TEST PT1 Name TEST DZ1 Name*7A
$FRFIR,F,143522,FS,PT,000,001,X,,Fire Fault   : TEST PT1 Name 6;30; TEST Reas*22
$FRFIR,D,143509,FD,PT,000,001,X,,Fire Disabled: TEST PT1 Name TEST DZ1 Name*7C
$FREVE,143504,FP00001,Outp On     : TEST FP1 Name*7D
$FREVE,143740,Sm00003,======System status: FINISHED=====*42
$FRALA,143740,FR,OT,000,901,N,V,Syst Fault   : AutroSafe comm. OK*75
$FREVE,143747,Sm00002,======Alive: Communication OK=====*74
```

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8.2 Testing Output with HyperTerminal

Connect the BSL-336 port 0 output to COM1 on a service computer using an adapted XJA-037 test cable, see below for adaptation details:
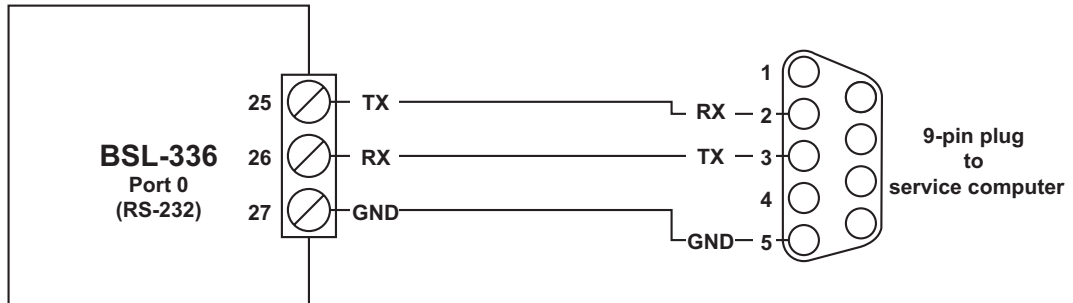
Remove the connector block from cable XJA-037. Connect the wires as described in the following table:

Signal	9-pin connector	Connector on cable XJA-037	Connection on VDR (Port 0)	Signal
RX	2	1	25	TX
TX	3	3	26	RX
GND	5	6	27	GND

Remove connector from cable and use wires.

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Run HyperTerminal on port 0 (this assumes use of Microsoft Windows®). To do this, do the following:

```
                    ( Start )
                        │
    ┌───────────────────────────────────────────┐
    │ Connect BSL-336 Port 0 to service computer port COM1 │
    └───────────────────────────────────────────┘
                        │
    ┌───────────────────────────────────────────┐
    │ Open Start>Accessories>Communications>HyperTerminal │
    └───────────────────────────────────────────┘
                        │
                   ◇ Is a                        ┌──────────────────────┐
                   "New Connection"  ──────────▶ │ Open File>New Connection │
                   dialogue open? ◇              └──────────────────────┘
                        │
    ┌───────────────────────────────────────────┐
    │ Enter name for new connection (Example: "Test") │ ◀──┐
    └───────────────────────────────────────────┘
                        │
    ┌───────────────────────────────────────────┐
    │ Select "Connect Using: COM1"               │
    └───────────────────────────────────────────┘
                        │
    ┌───────────────────────────────────────────┐
    │ Click "OK"                                 │
    └───────────────────────────────────────────┘
                        │
                   ◇ Is VDR                      ┌──────────────────────────┐
                   baud rate  ─────────────────▶ │ Select "Bits per second: 38400" │
                   4800? ◇                       └──────────────────────────┘
                        │
    ┌───────────────────────────────────────────┐
    │ Select "Bits per second: 4800"             │
    └───────────────────────────────────────────┘
                        │
    ┌───────────────────────────────────────────┐
    │ Click "OK"                                 │ ◀──┐
    └───────────────────────────────────────────┘
                        │
    ┌───────────────────────────────────────────┐
    │ Cause an event on the AutroSafe system     │
    └───────────────────────────────────────────┘
                        │
    ┌───────────────────────────────────────────┐
    │ Check that the event text is logged to the service computer │
    └───────────────────────────────────────────┘
                        │
                    ( Stop )
```

Once a connection with BSL-336 is established, the HyperTerminal will display any data transmitted by BSL-336. To ensure that the connection is up, reset the BSL-336 unit by pressing the reset switch on the unit front; this will prompt the following to appear:

```
$FREVE,143639,OZ00001,=====System status: START======
[stored events from AutroSafe]
$FREVE,143639,OZ00001, =====System status: FINISHED=====
```

Example:

Note that this may be interspersed with other data transmitted from the fire-detection system.

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8.3 Testing the Final Setup

After output from BSL-336 has been ascertained, it is desirable that the final setup with VDR in place be tested; for this to occur, it is necessary that the VDR system allows such a test function. See relevant VDR documentation.

Note that the line between BSL-336 and the VDR is one-way communication, and is therefore not monitored; VDR-data-receipt monitoring, it is therefore the responsibility of the VDR manufacturer.

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9. Reader's Comments

Please help us to improve the quality of our documentation by returning your comments on this manual:

Title: *Interfacing Voyage Data Recorder Systems, AutroSafe Interactive Fire-Alarm System*

Ref. No.: *116-P-BSL336/EE, RevA 2007-01-25*

Your information on any inaccuracies or omissions (with page reference):

Suggestions for improvements

Thank you! We will investigate your comments promptly.

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Autronica Fire and Security AS is an international company, based in Trondheim, Norway, and has a worldwide sales and service network. For more than 40 years Autronica's monitoring systems have been saving lives and preventing catastrophes on land and at sea. Autronica Fire and Security's most important business area is fire detection and security. Autronica Fire and Security stands for protecting life, environment and property.

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