Connecting Loop Units
Interactive fire detection systems
# Table of Contents

1. Introduction ................................................................................. 5  
   1.1 About the Handbook .............................................................. 5  
   1.2 Reference Documentation ..................................................... 5  
   1.3 The Reader ............................................................................ 5  

2. Detectors ..................................................................................... 6  
   2.1 Connecting Detectors .............................................................. 6  
   2.2 LED Connection on Detector ............................................... 6  
   2.3 Connection of Branch-off ...................................................... 7  
   2.4 Detector Head / Base Alignment .......................................... 8  
   2.5 Detector Label ....................................................................... 8  
   2.6 Detector Locking Mechanism ................................................. 9  
      2.6.1 Detector Base ................................................................. 9  
      2.6.2 Detector head ............................................................... 9  
      2.6.3 Removing a locked detector head .................................. 10  
   2.7 Detector Dust Covers ............................................................. 11  

3. Manual Callpoints ...................................................................... 12  

4. Input and Output Units ............................................................. 13  
   4.1 BN-180 AutroKeeper ............................................................ 13  
   4.2 BN-221/01 Extinguishing Control Unit ................................. 16  
   4.3 BN-221/02 Monitored Output Unit, 7A Relay ..................... 17  
   4.4 BN-303 Single Monitored Input Unit .................................. 18  
   4.5 BN-303/LS Local Alarm Delay Unit .................................. 19  
   4.6 BN-304 Single Monitored Input/Output Unit ...................... 20  
   4.7 BN-305 Dual Monitored Input/Output Unit ......................... 21  
   4.8 BN-307 Monitored Fire Alarm Device Control Unit .......... 22  
   4.9 BNB-330A Conventional Loop Interface .............................. 23  
   4.10 BNB-331 Conventional Loop Interface .............................. 24  
   4.11 BN-500/EX Input Unit with SelfVerify ............................... 25  
   4.12 BN-500/N Input Unit with SelfVerify .................................. 26  
   4.13 BN-505/EXD Input Unit with SelfVerify ............................ 27  

5. Control Units .............................................................................. 28  
   5.1 BW-200 Disable Input with Pushbuttons .............................. 28  
   5.2 BW-201 Disable Input with Timer Input ............................... 29  
   5.3 BW-202 Day/Night Control Unit with Pushbuttons ............ 30  
   5.4 BW-203 Day/Night Control Unit with Timer Input .......... 31  
   5.5 BU-200 Remote Alarm Control Unit .................................... 32
6. Alarm Units..................................................................................33
   6.1 Introduction..................................................................................33
   6.2 BBL-100 Beacon Indoor Addressable..........................................33
   6.3 BBR-130 Sounder Addressable with Base....................................34
   6.4 BBR-230 Sounder Indoor Addressable........................................35
   6.5 BBQ-130 Sounder/Strobe with Base...........................................36
   6.6 BBQ-230 Sounder/Strobe Addressable .......................................37

7. Detectors for Special Requirements.................................38
   7.1 AutroFlame IR Flame Detector BG-201........................................38
   7.2 AutroFlame IR Flame Detector BG-21........................................39
   7.3 Fireray 5000 .............................................................................40
   7.4 AutroSense Nano ........................................................................41
   7.5 AutroSense Micro 25 High Sensitivity Aspirating Detector ............42
   7.6 AutroSense Micro 100 High Sensitivity Aspirating Detector ...........43
   7.7 AutroSense Micro 200 High Sensitivity Aspirating Detector ..........44
   7.8 AutroFlame X33AF Multispectrum Infrared Flame Detector ..........45
   7.9 Ex iA Approved Detectors.........................................................46

8. Discontinued Products ......................................................47
   8.1 BBR-200 Programmable Electronic Sounders ............................47
   8.2 BBR-110 Addressable Socket Sounder .......................................48
   8.3 BN-300 Input Unit with SelfVerify ..........................................49
   8.4 BN-310 Single Relay Output Unit ............................................50
   8.5 BN-201 Monitoring Input Unit ................................................51
   8.6 BN-320 Interface with SelfVerify ...........................................52
   8.7 BN-320/2 Door Control Unit ..................................................53
   8.8 BN-320/4 Monitoring and Control Unit ....................................54
   8.9 BN-320/5 Sprinkler Control Unit ............................................55
   8.10 BN-330 Interface Unit for Conventional Loops ......................56
   8.11 AutroSense 75 Aspirating Smoke Detector ................................57
   8.12 AutroBeam 25 Infrared Beamdetector ....................................58
   8.13 AutroBeam 100 Infrared Beamdetector System .......................59

9. Reader’s Comments ..................................................................61
1. Introduction

1.1 About the Handbook

This document provides information on how to connect detectors and other loop units to the interactive fire detection systems Autoprime and AutroSafe.

Note that some loop units can be connected to AutroSafe only (the indication “AutroSafe only” is written in the beginning of these chapters).

Autronica’s interactive fire detection systems offer a wide range of fire alarm detectors, manual call points and input/output units, control units and alarm units that are developed and approved according to European directives (CPD) requiring EN 54 compliance.

Both input and input/output units are also available with the SV-function. Input units can also be delivered in series 500 and 500/Ex.

1.2 Reference Documentation

Detailed information for each loop unit is provided on separate data sheets.

1.3 The Reader

This handbook is intended for technical personnel.
2. Detectors

2.1 Connecting Detectors

2.2 LED Connection on Detector
2.3 Connection of Branch-off

If necessary, a branch-off can be connected to a detection loop if the existing cable layout requires this, but this is not recommended, as the safety will be reduced.

To ensure a correct addressing of the detectors on a branch-off when configuring the system, there can not be more than one branch-off per detector. For safety reasons, the number of detectors on each branch-off must be kept to a minimum, as the detectors on a branch-off will not operate in case of a break or shortcircuit on the branch-off. The absolute maximum number of detectors on a branch-off (or an open loop) is 32.

NOTE:
Always connect a branch-off to terminal 2 (-) and 3 (+).
2.4 Detector Head / Base Alignment

Location for tagname sticker

2.5 Detector Label
2.6 Detector Locking Mechanism

2.6.1 Detector Base
In the detector base a small locking nub will keep the springloaded tongue in an open position to prevent the detector head from being locked. If the locking nub is removed before mounting with a pair of cutting nippers or similar, the detector head will enter a locked position.

Detector base with locking nub

2.6.2 Detector head
The new springloaded tongue (figure 3) on the detector head will lock the head in a correct position if the locking nub has been removed before mounting.

Detector head with springloaded tongue
2.6.3 Removing a locked detector head

- To remove a locked detector head, use a suitable tool (for example a paper clip or similar) to push the springloaded tongue in, and simply turn the detector head counter-clockwise.

Use this hole to access and release the locking mechanism.
2.7 Detector Dust Covers

Autronica detectors are supplied with a dust cover. To avoid possible contamination of the detector chamber during installation, these should remain in place on the detector until commissioning is started.

IMPORTANT:
LEAVE DETECTOR DUST COVERS ON UNTIL COMMISSIONING IS STARTED
3. Manual Callpoints

![Diagram of manual callpoints and connections]

### Connector on Manual Call Point

<table>
<thead>
<tr>
<th>Connector on Manual Call Point</th>
<th>Wires on Detection Loop</th>
<th>Wires on detection loop BF-300V2/ BF-510WP-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pos (+) in</td>
<td>Pos (+) in</td>
</tr>
<tr>
<td>2</td>
<td>Pos (+) out</td>
<td>Neg (-) in</td>
</tr>
<tr>
<td>3</td>
<td>Neg (-) in</td>
<td>Pos (+) out</td>
</tr>
<tr>
<td>4</td>
<td>Neg (-) out</td>
<td>Neg (-) out</td>
</tr>
<tr>
<td>5</td>
<td>Internal connection</td>
<td>Internal connection</td>
</tr>
<tr>
<td>6</td>
<td>Internal connection</td>
<td>Internal connection</td>
</tr>
</tbody>
</table>

BF-300V2
BF-510WP-H
4. Input and Output Units

4.1 BN-180 AutroKeeper

The AutroKeeper is physically placed between the loop controller (BSD-310) and the detection loop and thus controlling/providing the loop controller access to the loop.

<table>
<thead>
<tr>
<th>Pin number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TTL COM</td>
</tr>
<tr>
<td>2</td>
<td>TTL IN</td>
</tr>
<tr>
<td>3</td>
<td>TTL OUT</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>24V IN</td>
</tr>
<tr>
<td>6</td>
<td>0V IN</td>
</tr>
<tr>
<td>7</td>
<td>FAILSAFE COM</td>
</tr>
<tr>
<td>8</td>
<td>FAILSAFE NO</td>
</tr>
<tr>
<td>9</td>
<td>OUTLOOP +</td>
</tr>
<tr>
<td>10</td>
<td>OUTLOOP -</td>
</tr>
<tr>
<td>11</td>
<td>INLOOP +</td>
</tr>
<tr>
<td>12</td>
<td>INLOOP -</td>
</tr>
<tr>
<td>13</td>
<td>OUT +</td>
</tr>
<tr>
<td>14</td>
<td>OUT -</td>
</tr>
<tr>
<td>15</td>
<td>IN +</td>
</tr>
<tr>
<td>16</td>
<td>IN -</td>
</tr>
</tbody>
</table>

DIN rail conn. 1 24V IN  | Power In  
DIN rail conn. 2 0V IN   | Power In  
DIN rail conn. 3 Not used |
DIN rail conn. 4 Not used |
DIN rail conn. 5 GND      |

Input and Output Units

BN-180 as Active
BN-180 as Standby

Patented component to meet the new SOLAS requirement
4.2 BN-221/01 Extinguishing Control Unit

The extinguishing control unit BN-221/01 is an interface unit which monitors and controls extinguishing equipment. The extinguishing equipment is powered from a separate 24 VDC supply. The interface unit is used in the AutroSafe interactive fire detection system, and it is connected directly to a detection loop.

The extinguishing equipment is powered from a separate 24 VDC supply. The interface unit is used in the AutroSafe interactive fire detection system, and it is connected directly to a detection loop.
4.3 BN-221/02 Monitored Output Unit, 7A Relay

The monitored output unit, 7A relay (BN-221/02) is connected directly to the detection loop in the AutroSafe interactive fire detection system. It controls and monitors external equipment. Typical applications are notification devices such as horns, strobe lights, indicating light etc.
4.4 BN-303 Single Monitored Input Unit

The Single Monitored Input Unit BN-303 has been designed for use with Autronica’s fire detection systems, Autroprime (version 1.1.0 or newer) and AutroSafe (version 4.3.1 or newer), and includes the SelfVerify function.

All connections are made to the screw terminals numbered 1-8.

<table>
<thead>
<tr>
<th>Screw terminal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AL_Com In (+)</td>
</tr>
<tr>
<td>2</td>
<td>AL_Com In (-)</td>
</tr>
<tr>
<td>3</td>
<td>AL_Com Out (+)</td>
</tr>
<tr>
<td>4</td>
<td>AL_Com Out (-)</td>
</tr>
<tr>
<td>5</td>
<td>Input (+)</td>
</tr>
<tr>
<td>6</td>
<td>Input (common)</td>
</tr>
<tr>
<td>7</td>
<td>Not in use</td>
</tr>
<tr>
<td>8</td>
<td>Not in use</td>
</tr>
</tbody>
</table>
4.5 BN-303/LS Local Alarm Delay Unit

The local alarm delay unit BN-303/LS enables delay of alarm routing outside the local area which the unit is connected to (Autroprime; 1 detection zone, AutroSafe; up to 10 detection zones), plus temporary stop of smoke detection in the local area.
4.6 BN-304 Single Monitored Input/Output Unit

The Single Monitored Input/Output Unit BN-304 has been designed for use with Autronica’s fire detection systems Autroprime (version 1.1.0 or newer) and AutroSafe (version 4.3.1 or newer), and includes the SelfVerify function.

All connections are made to the screw terminals numbered 1-8

<table>
<thead>
<tr>
<th>Screw terminal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AL_Com In (+)</td>
</tr>
<tr>
<td>2</td>
<td>AL_Com In (-)</td>
</tr>
<tr>
<td>3</td>
<td>AL_Com Out (+)</td>
</tr>
<tr>
<td>4</td>
<td>AL_Com Out (-)</td>
</tr>
<tr>
<td>5</td>
<td>Input (+)</td>
</tr>
<tr>
<td>6</td>
<td>Input (common)</td>
</tr>
<tr>
<td>7</td>
<td>Relay Contact</td>
</tr>
<tr>
<td>8</td>
<td>Relay Contact</td>
</tr>
</tbody>
</table>
4.7 BN-305 Dual Monitored Input/Output Unit

The Dual Monitored Input/Output Unit BN-305 has been designed for use with Autronica’s interactive fire detection systems, AutroPrime and AutroSafe, and includes the SelfVerify function.

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AL_Com In (+)</td>
</tr>
<tr>
<td>2</td>
<td>AL_Com In (-)</td>
</tr>
<tr>
<td>3</td>
<td>AL_Com Out (+)</td>
</tr>
<tr>
<td>4</td>
<td>AL_Com Out (-)</td>
</tr>
<tr>
<td>5</td>
<td>Input 1 (+)</td>
</tr>
<tr>
<td>6</td>
<td>Input 1 (common)</td>
</tr>
<tr>
<td>7</td>
<td>Relay 1 contact</td>
</tr>
<tr>
<td>8</td>
<td>Relay 1 contact</td>
</tr>
<tr>
<td>9</td>
<td>Input 2 (+)</td>
</tr>
<tr>
<td>10</td>
<td>Input 2 (common)</td>
</tr>
<tr>
<td>11</td>
<td>Relay 2 contact</td>
</tr>
<tr>
<td>12</td>
<td>Relay 2 contact</td>
</tr>
</tbody>
</table>

LED connectors

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>J2.1</td>
<td>LED1 + (LED Activate)</td>
</tr>
<tr>
<td>J2.2</td>
<td>LED1 - (LED Activate)</td>
</tr>
<tr>
<td>J2.3</td>
<td>LED2 + (LED Fault)</td>
</tr>
<tr>
<td>J2.4</td>
<td>LED2 - (LED Fault)</td>
</tr>
</tbody>
</table>

LED connector: A pin header enables the option to add LED indicators. The indication is a short blink at 0.5Hz period.
LED activate: The input or output is in Activation condition.
LED fault: There is a fault on the input or the unit itself.
4.8 BN-307 Monitored Fire Alarm Device Control Unit

The Monitored Fire Alarm Device Control Unit BN-307 has been designed for use with Autronica’s fire detection systems, AutroSafe and Autroprime.

*End-of-line resistance 2kohm (+/- 5%)
4.9 BNB-330A Conventional Loop Interface

The Conventional Loop Interface BNB-330A is a 2 wire interface unit for interfacing conventional detectors and manual call points onto Autronica’s interactive fire detection systems. BNB-330A replaces BNB-330 and may be used on all the same systems.

Connectors

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alarm Out1</td>
</tr>
<tr>
<td>2</td>
<td>Alarm Out2</td>
</tr>
<tr>
<td>3</td>
<td>N.A.</td>
</tr>
<tr>
<td>4</td>
<td>N.A.</td>
</tr>
<tr>
<td>5</td>
<td>Conv +</td>
</tr>
<tr>
<td>6</td>
<td>Conv -</td>
</tr>
<tr>
<td>7</td>
<td>N.A.</td>
</tr>
<tr>
<td>8</td>
<td>N.A.</td>
</tr>
<tr>
<td>9</td>
<td>Loop+</td>
</tr>
<tr>
<td>10</td>
<td>Loop In-</td>
</tr>
<tr>
<td>11</td>
<td>Loop+</td>
</tr>
<tr>
<td>12</td>
<td>Loop Out -</td>
</tr>
<tr>
<td>13</td>
<td>24V</td>
</tr>
<tr>
<td>14</td>
<td>0V</td>
</tr>
<tr>
<td>15</td>
<td>N.A.</td>
</tr>
<tr>
<td>16</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Bottom connectors

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24V</td>
</tr>
<tr>
<td>2</td>
<td>0V</td>
</tr>
<tr>
<td>3</td>
<td>N.A.</td>
</tr>
<tr>
<td>4</td>
<td>N.A.</td>
</tr>
<tr>
<td>5</td>
<td>Chassis ground</td>
</tr>
</tbody>
</table>
4.10 BNB-331 Conventional Loop Interface

The Conventional Loop Interface BNB-331 is a 2 wire interface unit for interfacing conventional detectors and manual call points onto Autronica’s interactive fire detection systems.

Connectors

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alarm Out1</td>
</tr>
<tr>
<td>2</td>
<td>Alarm Out2</td>
</tr>
<tr>
<td>3</td>
<td>Fault Out 1</td>
</tr>
<tr>
<td>4</td>
<td>Fault Out 2</td>
</tr>
<tr>
<td>5</td>
<td>Conv +</td>
</tr>
<tr>
<td>6</td>
<td>Conv -</td>
</tr>
<tr>
<td>7</td>
<td>PSUFit IN*</td>
</tr>
<tr>
<td>8</td>
<td>PSUFit 0V*</td>
</tr>
<tr>
<td>9</td>
<td>Loop In + (Al_Com)</td>
</tr>
<tr>
<td>10</td>
<td>Loop In - (Al_Com)</td>
</tr>
<tr>
<td>11</td>
<td>Loop out + (Al_Com)</td>
</tr>
<tr>
<td>12</td>
<td>Loop out - (Al_Com)</td>
</tr>
<tr>
<td>13</td>
<td>24V A</td>
</tr>
<tr>
<td>14</td>
<td>0v A</td>
</tr>
<tr>
<td>15</td>
<td>24V B*</td>
</tr>
<tr>
<td>16</td>
<td>0v B*</td>
</tr>
</tbody>
</table>

Bottom connectors

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24V A</td>
</tr>
<tr>
<td>2</td>
<td>0V A</td>
</tr>
<tr>
<td>3</td>
<td>24V B</td>
</tr>
<tr>
<td>4</td>
<td>0V B</td>
</tr>
<tr>
<td>5</td>
<td>Chassis ground</td>
</tr>
</tbody>
</table>
4.11 BN-500/EX Input Unit with SelfVerify

BN-500/EX is an input unit for use in hazardous area zone 0, 1, 2. It must be connected to the approved barrier BZ-500.

1. Pos (+) in
2. Pos (+) out
3. Neg (-) in
4. Neg (-) out
5. (-) Input
6. (+) Input
4.12 BN-500/N Input Unit with SelfVerify

1. Pos (+) in * EOL 2 KOHM
2. Pos (+) out
3. Neg (-) in
4. Neg (-) out
5. (-) Input
6. (+) Input
4.13 BN-505/EXD Input Unit with SelfVerify

BN-505/EXD is an input unit for use in hazardous area zone 1 or 2.
5. Control Units

5.1 BW-200 Disable Input with Pushbuttons

The Disable unit is used to disable one or a number of detection zones. The unit is connected to and powered from the detection loop. The disablement time is configurable.

* 1 or 2 units on each loop: Connect detector loop + (1), and detector loop – (3) to 24V input.
More than 2 units on each loop: Use external 24V supply
Separate 24V DC must always be used when if more than 2 units are connected to the loop, or if the 24V output is used.
5.2 BW-201 Disable Input with Timer Input

Applies to AutroSafe only.

The Disable unit is used to disable one or a number of detection zones. The unit is connected to and powered from the detection loop. An external timer controls the disablement time.

* 1 or 2 units on each loop: Connect detector loop + (1), and detector loop – (3) to 24V input.
More than 2 units on each loop: Use external 24V supply

Separate 24V DC must always be used when if more than 2 units are connected to the loop, or if the 24V output is used.

* 24V Output
* 24V Input

LED

Connection to External timer

Detection Loop

1
2
3
4
5
6
7
8
9
1kΩ
2k
2k
5.3 BW-202 Day/Night Control Unit with Pushbuttons

Applies to AutroSafe only.

The Day/Night Control Unit is used for remote operation of the Disable/Enable ‘Immediate Output Action’ commands. The unit is connected to and powered from the detection loop.

* 1 or 2 units on each loop: Connect detector loop + (1), and detector loop – (3) to 24V input.
More than 2 units on each loop: Use external 24V supply

Separate 24V DC must always be used when if more than 2 units are connected to the loop, or if the 24V output is used.
5.4 BW-203 Day/Night Control Unit with Timer Input

Applies to AutroSafe only.

The Day/Night Control Unit is used for remote operation of the Disable/Enable ‘Immediate Output Action’ commands. The unit is connected to and powered from the detection loop. An external timer controls the monitored input.

![Diagram of BW-203 Day/Night Control Unit](image)

* 1 or 2 units on each loop: Connect detector loop + (1), and detector loop – (3) to 24V input.
* More than 2 units on each loop: Use external 24V supply

Separate 24V DC must always be used when if more than 2 units are connected to the loop, or if the 24V output is used.
5.5 BU-200 Remote Alarm Control Unit

Applies to AutroSafe only.

The Remote Alarm Control Unit is used for remote / local alarm handling from predefined areas / zones. The main purpose of the unit is to facilitate alarm handling without disturbance of people and unnecessary calls to rescue services, for example, the fire brigade.

The unit can send acknowledgement and reset to the Fire Alarm Control Panel. The Remote Alarm Unit is connected to the detection loop. Each loop unit can be connected to one Operation Zone. An Operation Zone can have one or more units, but requires separate 24V DC power.
6. Alarm Units

6.1 Introduction

This chapter deals only with alarm units connected to the detection loop, not the ones that are connected to alarm outputs.

6.2 BBL-100 Beacon Indoor Addressable

Compact beacon for indoor use enclosed in an IP32C plastic casing. Reliable in operation and robust design. Simple mounting in all relevant directions.

![Detection Loop Diagram]

- Out + Out - In + In
6.3 BBR-130 Sounder Adressable with Base

BBR-130 is a combined detector base and addressable sounder that is connected directly to the detection loop.
6.4 BBR-230 Sounder Indoor Addressable

BBR-230 is an addressable sounder that is connected directly to the detection loop.

![Detection Loop Diagram]

- Out + Out - In + In
6.5 BBQ-130 Sounder/Strobe with Base

BBQ-130 is a combined detector base and addressable sounder/strobe that is connected directly to the detection loop.
6.6 BBQ-230 Sounder/Strobe Addressable

BBQ-230 is an addressable sounder/strobe that is connected to the detection loop.

![Diagram of BBQ-230 connection](image-url)
7. Detectors for Special Requirements

7.1 AutroFlame IR Flame Detector BG-201

The detector is provided with a pluggable terminal block for ease of connection.

Wire: Max. 2,5 mm² / 14 AWG

Interactive detection loop connection:

Terminal:

<table>
<thead>
<tr>
<th>Terminal:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STANDARD: For AutroSafe / Autoprime (Al_Com) detector loop</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEGACY: Replaces the 601F detector mounted with the FDI for AutroSafe/Autoprime loop (Class 2)</td>
</tr>
<tr>
<td>HIGH SENS: When used with conventional system as a Class 1 (25m) detector</td>
</tr>
<tr>
<td>LOW SENS: When used with conventional system as a Class 3 (12m) detector</td>
</tr>
</tbody>
</table>
7.2 AutroFlame IR Flame Detector BG-21

NOTE: For use with conventional fire alarm systems only.

The above connection between detectors on a conventional loop will secure a fault activation at the panel if one of the connectors are unplugged.
7.3 FireRay 5000

The FireRay® 5000 is a motorised infrared optical beam smoke detector.

The detector requires the use of the Single Input Monitoring Unit BN-303. The internal DIP switch S1 on the BN-303 unit selects the relevant function for the detector.

Function A is used (Alarm condition signalling input).
7.4 AutroSense Nano

The AutroSense Nano High Sensitivity Aspirating Detector requires the use of the Single Input Monitoring Unit BN-303. The internal DIP switch S1 on the BN-303 unit selects the relevant function for AutroSense Nano.

Function A is used (Alarm condition signalling input).
7.5 AutroSense Micra 25 High Sensitivity Aspirating Detector

The AutroSense Micra 25 High Sensitivity Aspirating Detector requires the use of the Single Input Monitoring Unit BN-303. The internal DIP switch S1 on the BN-303 unit selects the relevant function for AutroSense Micra 25.

Function A is used (Alarm condition signalling input, non-latching).
7.6 AutroSense Micra 100 High Sensitivity Aspirating Detector

The AutroSense Micra 100 detector requires the use of the Single Input Monitoring Unit BN-303. The internal DIP switch S1 on the BN-303 unit selects the relevant function for AutroSense Micra 100.

Function A is used (Alarm condition signalling input).
7.7 AutroSense 200 High Sensitivity Aspirating Detector

The AutroSense 200 detector requires the use of the Single Input Monitoring Unit BN-303. The internal DIP switch S1 on the BN-303 unit selects the relevant function for AutroSense 200.

Function F is used (Fault, Pre Alarm and Alarm condition signaling input, non-latching).
7.8 AutroFlame X33AF Multispectrum Infrared Flame Detector

The relay output is required only if the 24V supply for flame detectors needs to be controlled (e.g. latching alarms/faults). In this case BN-304 must be set to function G. If the 24V supply is to be permanently connected to X33AF, it is possible to use BN-303 function A, or BN-304 function A or G.
7.9 Ex ia Approved Detectors

Ex ia-approved detectors can be connected to the system. The *Ex-Barrier Unit (BZ-500)* is used to separate the safe area from the hazardous (Ex) area. A maximum of 20 Ex ia-approved detectors can be mounted as a branch-off from the Ex-Interface Unit on the loop.

Note: The Ex-Barrier Unit BZ-500 is shown upside down on the drawing.
8. Discontinued Products

8.1 BBR-200 Programmable Electronic Sounders

**SUBSTITUTE PRODUCT: BBR-230**

The Electronic Sounder (BBR-200) has its own address / interface board and can be connected directly to a detection loop. The unit is powered from the detection loop. No external power supply is required.

![Diagram of BBR-200 Electronic Sounder with address/interface board]

- Loop Driver Module
- Detection loop out
- Detection loop in
8.2 BBR-110 Addressable Socket Sounder

SUBSTITUTE PRODUCT: BBR-130

The Socket Sounder (BBR-110) is a combined detector base and addressable sounder. The unit is powered from the detection loop. No external power supply is required.

- In: Terminal connection 1
- Out: Terminal connection - out on circuit board
Common (+ In and + Out): Terminal connection 3
External LED: Terminal connection 4
8.3 BN-300 Input Unit with SelfVerify

**SUBSTITUTE PRODUCT: BN-303**

BN-300 input unit is used to interface different types of signal devices of ON/OFF-type (for fire alarms) onto the detection loop.
8.4 BN-310 Single Relay Output Unit

**SUBSTITUTE PRODUCT: BN-304**

BN-310 single relay output unit contains a potential free change-over contact which can be activated from a detector or a combination of several detectors in alarm.

---

### Loop Driver Module

- 1. Pos (+) in
- 2. Pos (+) out
- 3. Neg (-) in
- 4. Neg (-) out
- 5. N.A
- 6. N.A
- 7. N.A
- 8. N.A
- 9. Normally open
- 10. Normally closed
- 11. Common

---

Not for use.

---

Relay contact

---


Page 50
8.5 BN-201 Monitoring Input Unit

**SUBSTITUTE PRODUCT: BN-303**

The Monitoring Input Unit is used for monitoring of fault or other signal contacts from external equipment (technical alarms).

Four different classes can be configured in order to be able to monitor different setups of the fault contact(s). Each class can be set to latching or non-latching operation.

- **Class 1**: Normal Open contact with ‘activate’ resistor, fault monitored for open and short circuit.
- **Class 2**: Normal Closed contact with ‘activate’ resistor, fault monitored for open and short circuit.
- **Class 3**: Normal Open contact without ‘activate’ resistor, fault monitored for open circuit.
- **Class 4**: Normal Closed contact without ‘activate’ resistor, fault monitored for short circuit.
8.6 BN-320 Interface with SelfVerify

**SUBSTITUTE PRODUCT: BN-304/BN-305**

The I/O unit BN-320 is connected to the detector loop to control, monitor or identify external equipment. Typical applications are:
- Interface for AutroFlame detectors
- Interface for AutroBeam 25

![Diagram of BN-320 Interface with SelfVerify](image-url)

1. Pos (+) in
2. Pos (+) out
3. Neg (-) in
4. Neg (-) out

Loop

5. (+) input A
6. (-) input A
7. (+) input B
8. (-) input B
9. Normally open
10. Normally closed
11. Common

Relay contact

**NOTE:**
- BN-320 is a substitute for BN-304/BN-305.
- BN-320 is compatible with Autronica's detector loop systems.

---

8.7 BN-320/2 Door Control Unit

**SUBSTITUTE PRODUCT: BN-305**

The Door Control unit controls and monitors fire doors. The unit is connected to the detection loop, and powered from an external 24V DC power supply.

**Switch 1**
- **Closed**
- **Open**

**Switch 2**
- **Closed**
- **Open**

**Status**
- Door Open
- Door in transition
- Door Closed
- Illegal (fault)

**Diagram:**
- BN-320/2 Door Control Unit
- Loop Driver Module
- 24 VDC
- Input A
- Input B
- Output
- CLOSING OF FIRE DOORS
- Trigging of electro-magnetic doorholder
- Normally closed output.
8.8 BN-320/4 Monitoring and Control Unit

SUBSTITUTE PRODUCT: BN-305

The Monitoring and Control Unit monitors and/or controls various external equipment such as control of fire dampers, ventilation valves, fans, lifts, plus fire and smoke hatches. The unit is connected to and powered from the detection loop. External equipment must have separate power supply.

![BN-320/4 System Diagram]

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Page 54
8.9 BN-320/5 Sprinkler Control Unit

**SUBSTITUTE PRODUCT: BN-303**

The Sprinkler Control Unit is used for monitoring and control of sprinkler systems. The unit is connected to and powered from the detection loop.
8.10 BN-330 Interface Unit for Conventional Loops

**SUBSTITUTE PRODUCT: BNB-331**

Applies to AutroSafe only.

The *Interface Unit for Conventional Loops BN-330* consists of a BNB-330 module* mounted on a DIN-rail inside a PCM-box. The conventional detectors are connected to a two-wire sub loop. The sub loop is monitored for broken line by an end-of line unit BNY-330. The interface unit must have a separate 24V supply.

* Variant:
The internal *Conventional Loop Interface Module BNB-330* is mounted on a DIN-rail onto other internal modules inside the Fire Alarm Control Panel / Controller where it is powered with 24VDC.

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+ AL-Com in</td>
</tr>
<tr>
<td>2</td>
<td>- AL_Com in</td>
</tr>
<tr>
<td>3</td>
<td>+ AL-Com out</td>
</tr>
<tr>
<td>4</td>
<td>- AL_Com out</td>
</tr>
<tr>
<td>5</td>
<td>+ 24V Input</td>
</tr>
<tr>
<td>6</td>
<td>0V</td>
</tr>
<tr>
<td>7</td>
<td>Conventional loop 15V/24V select</td>
</tr>
<tr>
<td>8</td>
<td>T-output / Open collector</td>
</tr>
<tr>
<td>9</td>
<td>+ conventional loop</td>
</tr>
<tr>
<td>10</td>
<td>- conventional loop</td>
</tr>
</tbody>
</table>
8.11 AutroSense 75 Aspirating Smoke Detector

Discontinued Products
8.12 AutroBeam 25 Infrared Beamdetector

![Diagram of AutroBeam 25 Infrared Beamdetector](image)

- **24 VDC**: Power supply for the detector.
- **BN-320**: Interface unit for connecting detectors to the system.
- **Reflector**: Mounted to ensure proper beam detection.
- **AutroBeam 25**: Infrared beam detector.
- **Alarm signal**: Connection for alerting the system of a potential fire.
- **Main loop in**: Connection for the primary loop of the detector.
- **Main loop out**: Connection for the secondary loop of the detector.

**Connector Details**:

- **BN-320**
  - **C, NC, NO**: Signal connections for various relay outputs.
  - **24VDC**: Power supply.
  - **2k**: Resistor for balancing the circuit.

**Terminal Connections**:

- **Main loop in**: Connect to the primary loop of the detector.
- **Main loop out**: Connect to the secondary loop of the detector.
- **4, 6**: Relay outputs for alarm and fault signals.

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*Discontinued Products*


*Page 58*
8.13 AutroBeam 100 Infrared Beamdetector System

**SUBSTITUTE PRODUCT: FIRERAY 5000**

![Diagram of AutroBeam 100 Infrared Beamdetector System]

(Drawing No. bs-1160)
9. Reader’s Comments

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Ref. No.: 116-P-CONNECTLOOPUNIT/DGB, rev. D, 2013-02-21

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Suggestions for improvements

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