

# AutoKeeper BN-180

AutoSafe Interactive Fire Detection System, Release 4  
Product datasheet

## Features

- Two AutoKeepers interface two loop controllers (Loop Driver Modules BSD-310) to one AL\_Com detection loop by assuring non-conflicting loop access
- Approved according to the requirements of the major maritime classification societies (IACS E10)
- TS35 DIN rail mounted
- SOLAS (Safe Return to Port)
- FailSafe Output Relay (future)
- Isolated power input
- Automatic addressing

## Application / Description

Two AutoSafe Interactive Fire Alarm Systems using AutoKeepers (BN-180) to access one set of detection loops, provides a total system with a primary and a secondary loop control (**AutoSafe Dual Safety**). If, by any reason, the primary loop control fails, the secondary loop control will take over, and fire detection is thus maintained. Redundancy is achieved without introducing two set of detection loops and thus avoiding twice the amount of cabling and detectors.

The AutoKeeper is physically placed between the loop controller (BSD-310) and the detection loop and thus controlling/providing the loop controller access to the loop. The AutoKeeper function is to make sure that only one system through one loop controller can control the detection loop or part of the detection loop at the same time. The two AutoKeepers connected to one loop will communicate using the detection loop and strive to make sure that one of the two is in active mode and the other is in standby mode.

The AutoKeepers will continuously monitor critical parameters to ensure loop access without conflict through either the primary or the secondary AutoKeeper. As already implied the AutoKeeper giving loop access is in active mode while the other AutoKeeper is in standby mode. User commands are available to **appeal** for a transfer of control to the AutoKeeper in standby mode.

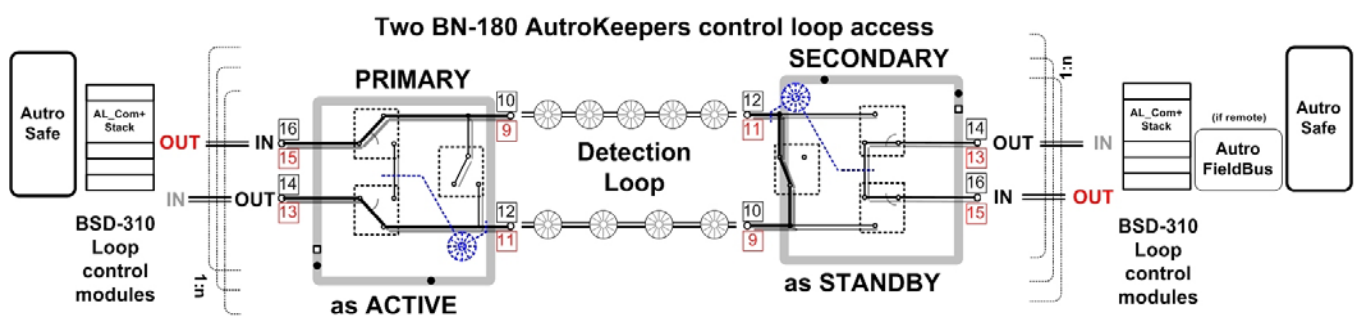


Commands may be rejected due to loop access conflicts or the standby AutoKeeper not being able to take over. Automatic switchover also has acceptance and rejection criteria like this.

A detection loop switchover makes the active AutoKeeper standby and the standby AutoKeeper active. The switchover time is so short that the loop units will be operating during the switchover, powered by their internal battery capacitor (version dependent).

An AutoKeeper in standby mode creates galvanic isolation between its loop controller (system) and the detection loop. Thus, the two systems connected to one set of loops, can have different sources of power. A detection loop ground fault will only be detected and will only affect the system on the detection loop's active side. A disabled loop will set both AutoKeepers in standby mode and leave the loop unpowered and floating.

The AutoKeeper will normally have one 24VDC power input. If power is lost, the AutoKeeper will still be operational by using power provided from the detection loop, but it will try to leave the active state. If both power sources fail, there will be a switchover if the standby AutoKeeper is ready to become active.



DIP-switch settings	
Pin	Description, position (OFF/ON)
1	“Ascription” (use one of each): Off – Primary / On – Secondary
2	Off – Normal operation (Seen as AL_Com unit) On – Force Majeur (If Ascription Primary: Active, Secondary: Standby – automatic actions disabled)
3	When switched to On or Off the unit will be reset within 5 seconds
4	“Janitor”, cleaning of EEPROM, read at power-up. On – may f.ex. be used during program update Off – Normal operation
5	Not in use – set to Off
6	Reserved – set to Off
7	Reserved – set to Off

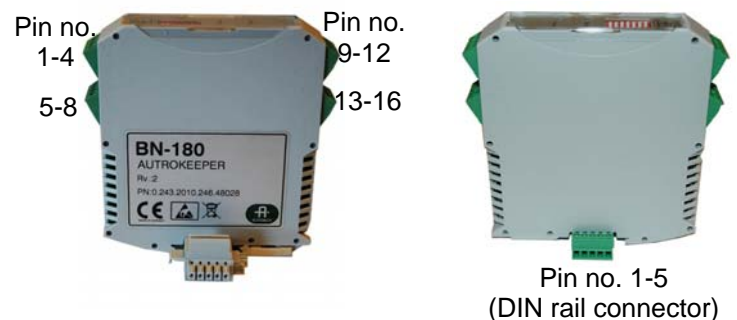
Red LED basically shows “Mode”	
All patterns except the last are repeating	
One soft blink	“Standby” and 24V power ok. 24V power when green LED on
Two soft blinks	“Active” and 24V power ok
Three soft blinks	“Half” (used during loop raise etc.) and 24V power ok
One short blink	“Standby” and 24V power lost
Two short blinks	“Active” and 24V power lost
Three short blinks	“Half” and 24V power lost
Dark	If both LEDs off then not running.
Two distinct blinks	Restarting

Technical specifications	
Dimensions (mm)	22,5 x 114,5 x 99mm
Weight (g)	200g
Housing material	Polyamide 6.6
Mounting	TS35 DIN rail
Power supply	18-32V
Current consumption	40mA – from power input 5mA – from the AL_Com loop
Operating Temperature range	-5 to +70 °C
Storage Temperature range	-40 to +70 °C
Humidity	10% - 95% RH (non-condensing)
Degree of protection	IP 30
Approvals	IACS E10 SOLAS (Safe Return to Port)
Interfaces	<ul style="list-style-type: none"> <li>■ Autronica Loop Communication protocol (AL_Com); one direct on 11 and 12, and two via optocouplers, where one is “listen only”</li> <li>■ Relay output</li> </ul>
Cable terminals	Max 2.5mm <sup>2</sup> single core wires
Cable requirements	Refer to specification for

Technical specifications	
AL_Com	AutoSafe or Autoprime
Output relay rating	1A 30VDC
Output relay type	Dry contact
Galvanical isolation	24V power, terminals 1-3,5-8. Loop also floats when Standby (see figure)

Pin no.	Description	
1	TTL COM	Debug port (internal use only)
2	TTL IN	Debug port (internal use only)
3	TTL OUT	Debug port (internal use only)
4	GND	
5	24V IN	Power In (Green LED)
6	0V IN	Power In
7	FAILSAFE COM	FailSafe Rel. (future)
8	FAILSAFE NO	FailSafe Rel. (future)
9	OUTLOOP +	To “first” Loop Unit
10	OUTLOOP -	--“--
11	INLOOP +	To “last” Loop Unit
12	INLOOP -	--“-- and internal VMOS
13	OUT +	To Loop Driver’s IN +
14	OUT -	To Loop Driver’s IN -
15	IN +	To Loop Driver’s OUT+
16	IN -	To Loop Driver’s OUT -
DIN rail conn. 1	24V IN	Power In
DIN rail conn. 2	0V IN	Power In
DIN rail conn. 3	Not in use	
DIN rail conn. 4	Not in use	
DIN rail conn. 5	GND	

**Location of Connectors / Pin Numbers**



Patented component to meet the new SOLAS requirement “Safe Return to Port”, NO20083912  
Patent application PCT/NO2009/000319

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