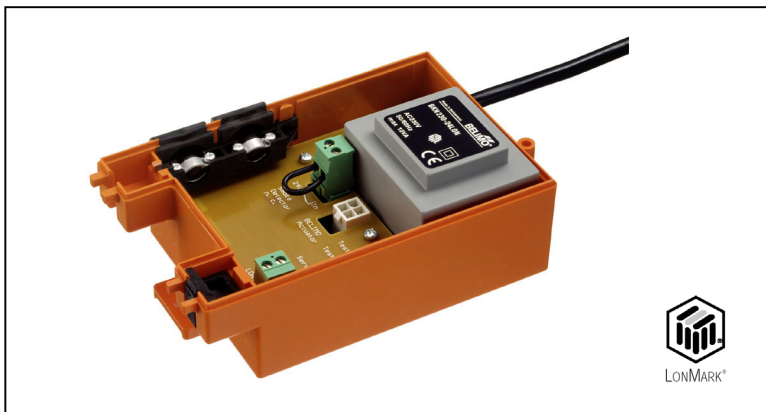
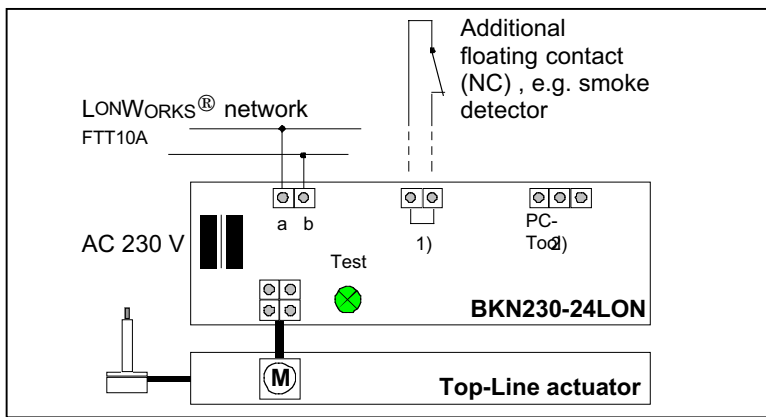


BKN230-24LON

Communication and Power Supply Unit for Top-Line Fire & Smoke Actuators
for LONWORKS® applications



Wiring Diagram



- 1) Factory-fitted jumper. Can be removed if necessary to be replaced by an external floating contact (NC), e.g. smoke detector. The safety function will be triggered if terminals 1 and 2 are not linked.
- 2) Plug-in contacts for connecting a PC via the ZIP-RS232 module

Note:

The unit does not contain any parts that can be repaired or exchanged by the user.

Communication and power supply unit for Top-Line Fire & Smoke Actuators for LONWORKS® applications

Application

The BKN230-24LON unit is suitable for:

- power supplies
- interconnection
- LONWORKS® interfacing

with Top-Line Fire & Smoke Actuators (e.g. BF24TL-T-ST)

Mode of operation

The BKN230-24LON unit adds extra functionality to the safety functions that are already an integral part of the actuator, converting the actuator's digital MP-Bus protocol to LonTalk® and vice versa.

LonMark® Functional Profile

The BKN230-24LON unit is LonMark® certified. All functions of Top-Line Fire & Smoke Actuators are made available to the LonWorks® network in the form of standard network variables (SNVT) conforming to LonMark® requirements. The objects "Node", "FSDA" and "Open Loop Sensor" are implemented.

Features

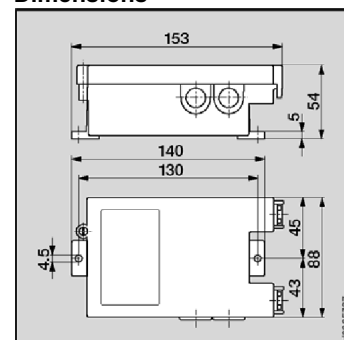
- Built-in test function for checking the actuator and the BKN unit independently of the bus network
- Terminal strip for incorporating additional triggering devices, such as smoke detectors with a floating contact
- Power supply to the damper actuator via a plug connector (24 V AC from a safety isolating transformer)
- Built-in 'watchdog' for triggering a safety function in the event of bus malfunction
- Visual indicators for actuator position, status and maintenance

Accessories

- Top-Line F&S PC-Tool (SWTL 1.1) for diagnostics, service and OEM set-up. Only the OEM may change parameter settings! Plugging in the PC-Tool overrides communication between LonTalk® and actuator.
- ZIP-RS232 (PC interfacing) and ZN230-24 (power supply)

| Technical Data | BKN230-24LON |
|---|--------------------------------------|
| Nominal voltage | AC 230 V 50/60 Hz |
| Nominal voltage range | AC 198...264 V |
| For wire sizing | 16 VA (with actuator) |
| Power consumption | 14 W (with actuator) |
| Connection | |
| - Mains | 1 m long lead with Euro-plug Type 26 |
| - Actuator | 4-pin plug connector |
| - LonWorks® | screw terminals, 2 poles |
| - Additional triggering device (optional) | screw terminals, 2 poles |
| - Top-Line F&S PC-Tool (via ZIP-RS232) | 3-pin plug connector |
| Protection Class | II (all-insulated) |
| Degree of protection | IP 40 |
| Ambient temperature range | |
| - normal duty | -30... +50°C |
| Non-operating temperature | -40... +80°C |
| Humidity test | to EN 30730-1 |
| EMC | CE to 89/336/EEC |
| Low-Voltage Directive | CE to 73/23/EEC |
| Mode | Type 1 (EN60730-1) |
| Software Class | A (EN60730-1) |
| Transceiver | FTT-10A |
| International certificate | CB according to IEC 60730-1 / -2-14 |
| Maintenance | Maintenance free |
| Weight | 680 g |

Dimensions

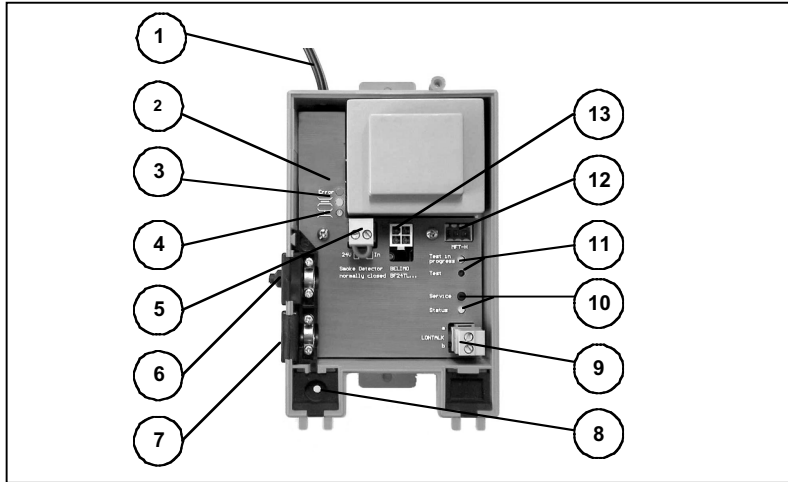


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Signalling and Diagnostic Functions



- 1 Mains power input, 230 V AC
- 2 LED Error (red)
- 3 LED Damper open (green)
- 4 LED Damper closed (yellow)
- 5 Terminal for additional contact (NC), e.g. smoke detector
- 6 Cable entry, e.g. for smoke detector
- 7 Cable entry, e.g. for LONWORKS® network
- 8 Cable entry for Belimo actuator
- 9 Connector for LONWORKS® network
- 10 Status LED, yellow; Service button (LONMARK®)
- 11 Test button and Test LED, yellow
- 12 Connector for Top-Line F&S PC-Tool
- 13 Connector for Belimo Top-Line Fire & Smoke Actuator

Signalling

| Display | Colour | Status | Function |
|----------------------|--------|-----------------------|--|
| | green | flashing on | Damper OPENING Damper OPEN |
| | yellow | flashing on | Damper CLOSING Damper CLOSED |
| Error | red | flashing on | Existing fault MP communication fault |
| Status LED (LONMARK) | yellow | on flashing off | No user software loaded Not configured (factory setting) Configured (normal operation) |
| Test | yellow | on | Test in progress |

Test Function

Holding the test button depressed for at least 3 seconds will initiate a test sequence. The test button is accessible through a hole and can be pressed with the aid of a thin tool.

Service

If the LonWorks® node has not been configured the actuator can be opened and closed by pressing the test button.

In the configured state, however, pressing the test button will always initiate a test sequence.

Flashing

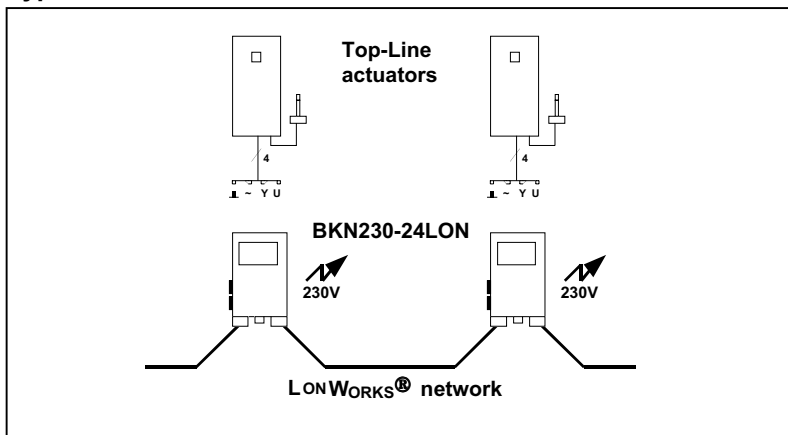
The LED's for error, damper open and damper closed flash for approximately 7 seconds when necessary. Repeated flashing does not extend the flashing time.

Factory Settings

The BKN230-24LON unit is not configured before delivery.

The unit can be configured manually by applying mains power and pressing the service button for 3 to 10 seconds.

Typical Installation



Note

Topology:

The FTT 10-A transceiver is suitable for all forms of topology (bus, star, ring, etc.).

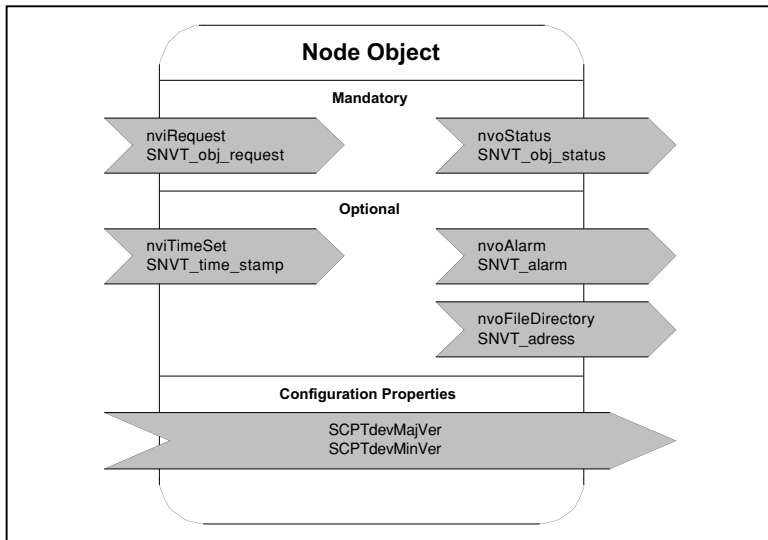
For safety reasons Belimo recommends that motorized fire and smoke dampers only be used on separate networks (channels).

Addressing:

The bus node address (fixed) is stored in the BKN230-24LON unit. This means that no re-addressing or system resetting is necessary when replacing a Top-Line actuator.

Functional Profile

(Note: For more detailed information refer to the LonMark® web-site)

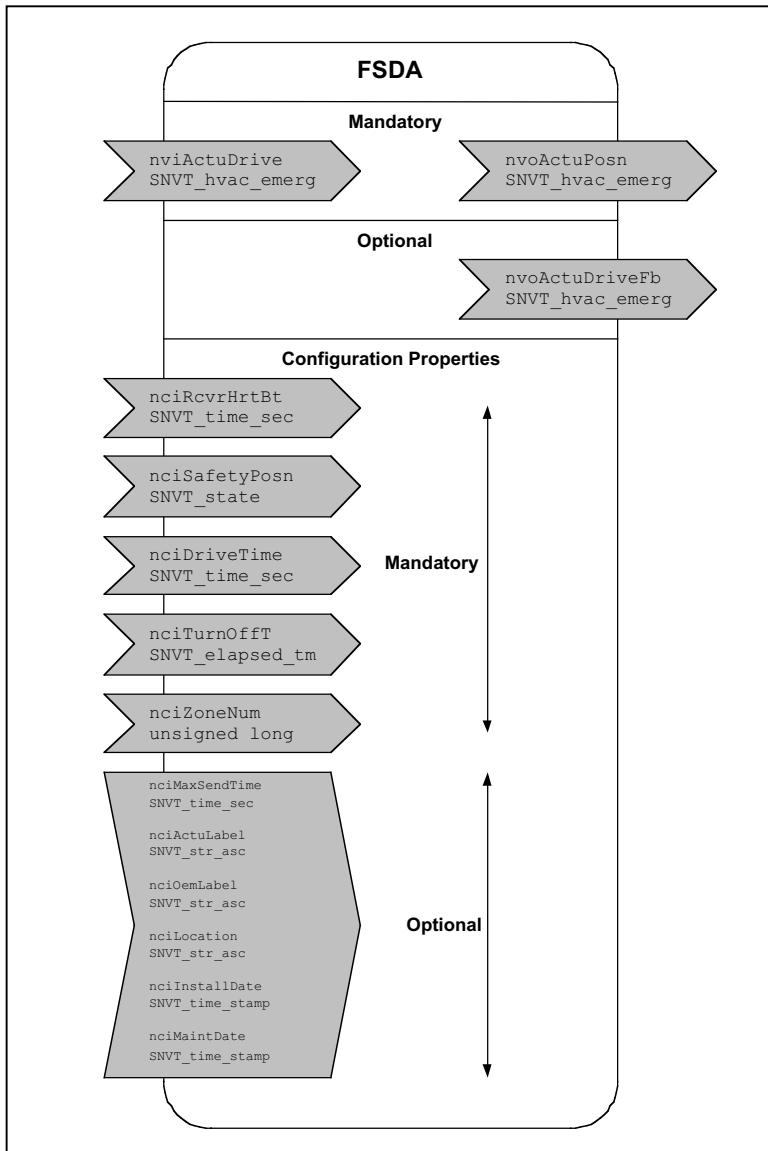


Node Object (#0)

<http://www.lonmark.org/press/download/LYR732.pdf>
Implementing the two standard network variables "Request" and "Status" in the node object is mandatory.

nviRequest **SNVT_obj_request**
Input variable to request the status of the actuator. Can also be used to initiate the test function. Testing is only possible if the damper is in the open position (after the nviActuDrive command).

nvoStatus **SNVT_obj_status**
Output variable indicating the actual status of the actuator.



Fire/Smoke Damper Actuator Object (FSDA # 11001_10)

http://www.lonmark.org/press/download/11001_10.pdf
Implementing the two standard network variables "ActuDrive" and "ActuPosn" in the FSDA object is mandatory.

nviActuDrive **SNVT_hvac_emerg**
Controls actuator position.

nvoActuPosn **SNVT_hvac_emerg**
Reflects the actuator position.

nciRcvrHrtBt **SNVT_time_sec**
Sets the maximum time that may expire before the actuator automatically goes to the fail-safe position. For safety reasons a time window of 60...300 s is recommended.

nciDriveTime **SNVT_time_sec**
Contains the motor drive time set in the actuator.

nciTurnOffTime **SNVT_elapsed_tm**
Contains the turn-off time of the actuator.

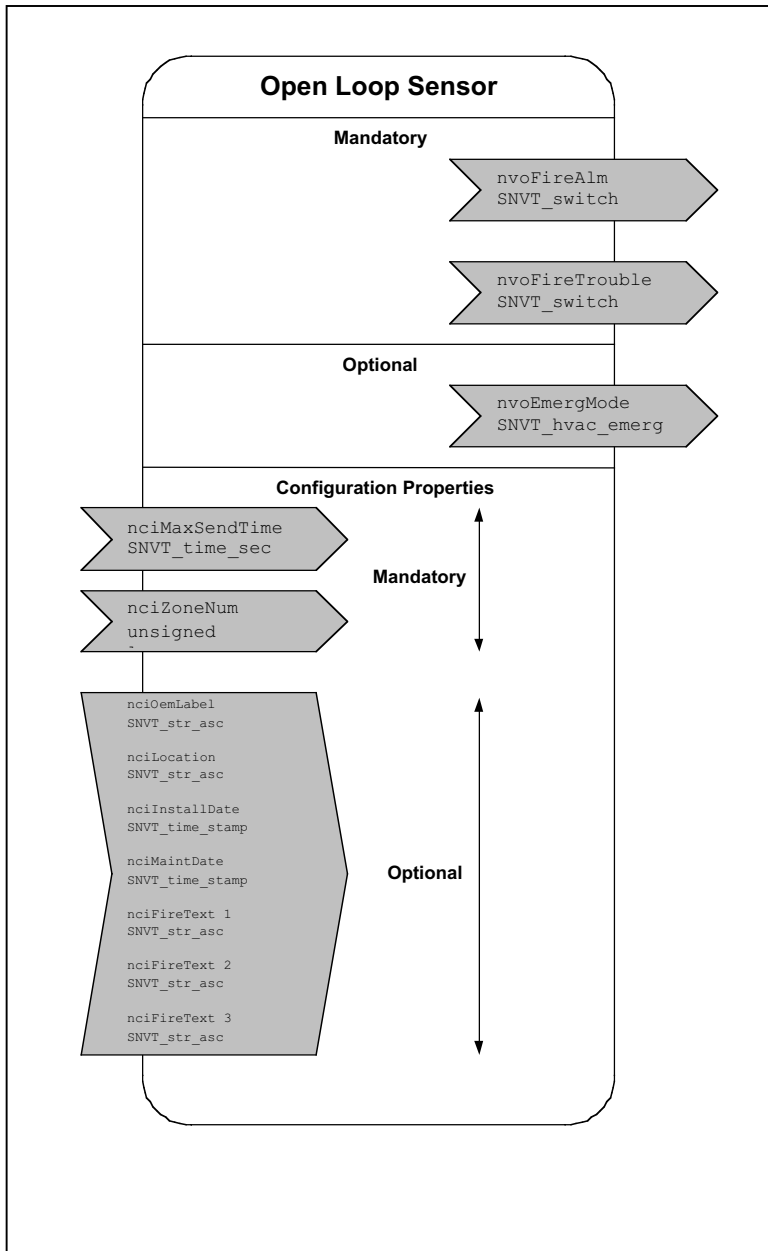
NciZoneNum, nciInstallDate und nciMaintDate
Information can be stored in the BKN230-24LON unit (via the system integrator).

nciOemLabel **SNVT_str_asc**
OEM string stored in the actuator (Contents: e.g. damper type, tripping temperature, etc.).

nciLocation **SNVT_str_asc**
Location string stored in the actuator (Contents: Location position, fire zone, etc.).

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Open Loop Sensor Object (fire, smoke)

http://www.lonmark.org/press/download/11003_01.pdf
Implementing the two standard network variables "FireAlm" and "FireTrouble" in the OLS object is mandatory.

For each fire and smoke damper actuator the following 3 sensor values are monitored:

- duct temperature
- duct exterior temperature
- status of additional sensor contact (e.g. smoke detector)

nvoFireAlm **SNVT_switch**

Transmits the fire information of the 3 sensor values in case of a fire alarm condition.

nvoFireTrouble **SNVT_switch**

Indicates any initiator failure condition that can be detected by the device

nvoEmergMode **SNVT_hvac_emerg**

For direct control of a FSDA. OR function of the nvoFireAlm states.

nciMaxSendTime **SNVT_time_sec**

Defines the maximum period of time in which the "nvoFireAlm" must be sent.

For safety reasons a time window of 60...300 s is recommended..

NciZoneNum, nciInstallDate und nciMaintDate

Information can be stored in the BKN230-24LON unit (via the system integrator).