BELIMO

Technical data sheet BKN230-24LON

Communication and power supply unit for Top-Line fire protection actuators for LONWORKS® applications.

- **AC 230 V supply via Euro plug**
- **Supply and control are electrically isolated**
- **Simple integration of a smoke detector contact possible**
- **Suitable actuators**
  Top-Line fire protection actuators BF(G)24TL-T-ST

LONMARK®

Technical data

Electrical data	Nominal voltage	AC 230 V, 50/60 Hz
	Nominal voltage range	AC 198 ... 264 V
	Power consumption Operation	9 W (incl. actuator)
	For wire sizing	10 VA (incl. actuator)
	Connections	see «Connections» on page 2
Safety	Protection class	**II** Totally insulated ⧈
	Degree of protection	IP40
	EMC	CE according to 2004/108/EC
	Low-voltage directive	CE according to 2006/95/EC
	Mode of operation	Type 1 (EN 60730-1)
	Software Class	A (EN 60730-1)
	Transceiver	FTT-10A
	International certificate	CB in accordance with IEC 60730-1/-2-14
	Rated impulse voltage	4 kV (EN 60730-1)
	Control pollution degree	2 (EN 60730-1)
	Ambient temperature	–30° ... +50°C
	Non-operating temperature	–40° ... +80°C
	Moisture test	95% r.h., non-condensating (EN 60730-1)
	Maintenance	Maintenance-free
Dimensions / Weight	Dimensions	See «Dimensions» on page 5
	Weight	Approx. 680 g

Safety notes

⚠

- **The device has been designed for use in stationary heating, ventilation and air-conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.**
- **Only authorised specialists may carry out installation.**
  All applicable legal or institutional installation regulations must be complied with during installation.
- **The device may not be opened by the user nor by anyone else other than a trained specialist. It does not contain any parts that can be replaced or repaired by the user.**
- **The device contains electrical and electronic components and is not permitted to be disposed of as household refuse. All locally valid regulations and requirements must be observed.**

Product features

Application

The BKN230-24LON is used as
– Power supply unit
– Connection socket
– LONWORKS® interfacing
with fire protection damper actuators of the Top-Line series (e.g. BF24TL-T-ST).

Product features

Mode of operation

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

Functional Profile as per LONMARK®

The BKN230-24LON unit is LONMARK® certified. All functions of Top-Line fire protection actuators are made available to the LONWORKS® network in the form of standard network variables (SNTV) conforming to LONMARK® requirements. The objects «Node», «FSDA» and «Open Loop Sensor» are implemented.

Properties

- Built-in LED test function for checking the actuator and the BKN unit independently of the bus network
- Terminal strip for additional local smoke detector with a floating contact
- Plug for Top-Line fire protection actuator
- Built-in «Watchdog» for triggering a safety function in the event of bus malfunction (must be setting in the Functional Profile)
- Visual indicators for actuator position, status and maintenance

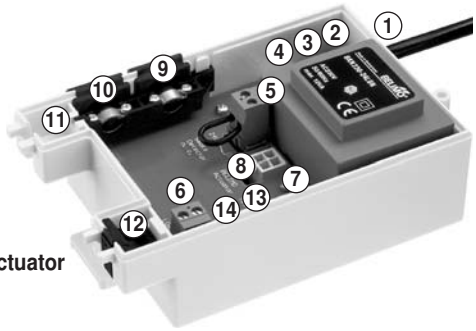
Accessories

Description
BELIMO PC-Tool (MFT-P) for diagnostics, service, OEM settings. Communication between LONTALK® and actuator is interrupted while the PC-Tool is plugged in.
ZIP-USB-MP (interface set for the PC)
ZTH-GEN (Adjustment and diagnostic tool)

Electrical installation

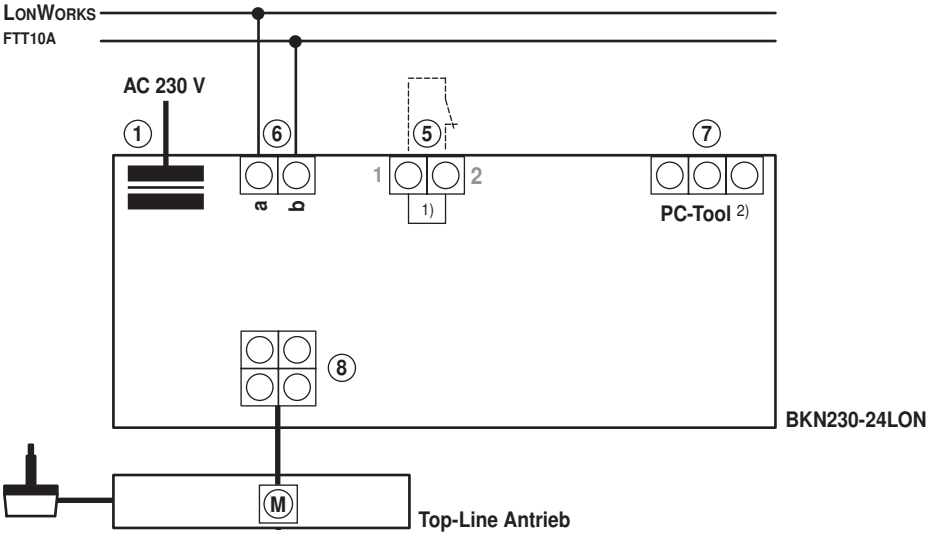
Connections

1. **Power supply: AC 230 V**
2. **Error** (LED red)
3. **Damper (actuator) open** (LED green)
4. **Damper (actuator) closed** (LED yellow)
5. **Plug for smoke detector contact**
6. **Plug for LONWORKS® network**
7. **Plug for BELIMO PC-Tool**
8. **Plug for Belimo Top-Line fire protection actuator**
9. **Cable entry for smoke detector contact**
10. **Cable entry** (z.B. für LONWORKS® network)
11. **Cable entry for BELIMO actuator**
12. **Cable entry for BELIMO PC-Tool**
13. **Status** (LED yellow) / **Service-Pin** (LONTALK®)
14. **Test button and test LED** (yellow)



Please note!
- Pull out the AC 230V mains plug before opening the housing cover!

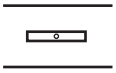
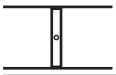
Wiring diagram



1) Factory-fitted jumper. Can be removed if necessary to be replaced by a smoke detector (nc). 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-USB-MP module.

Electrical installation *(Continued)*

Signalling

Display	Colour	Status	Function
	green	flashing	Damper OPENING
		on	Damper OPEN
	yellow	flashing	Damper CLOSING
		on	Damper CLOSED
Error		flashing	Existing fault
		on	MP communication fault
Status LED (LONTALK®)	yellow	flashing	No user software loaded
		on	Not configured (factory setting)
		off	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 (< 3 s).
In the configured state, however, pressing the test button will always initiate a test sequence.

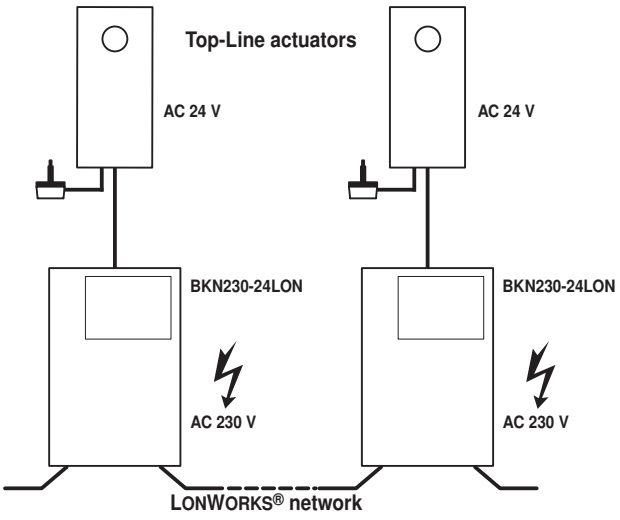
Flashing

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.

Principle diagram



Note
For safety reasons, BELIMO recommends that motorised fire protection dampers be operated only on separate networks.

Topology

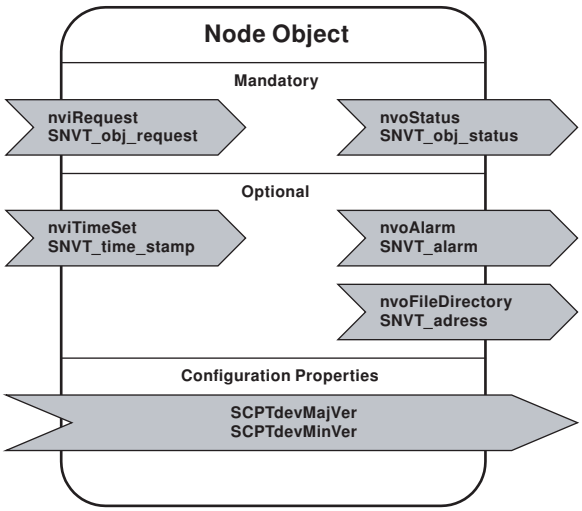
The FTT 10-A transceiver is suitable for all forms of topology (bus, star, ring, etc.).

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 as per LONMARK®

The BKN230-24LON unit is LONMARK® certified. The following actuator functions are made available via the LONWORKS® network as standardised network variables in accordance with LONMARK®: the Node Object #0, the Fire Smoke Damper Actuator Object #11001_10 and the Open Loop Sensor Object #11003_01.



Node Object #0

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).

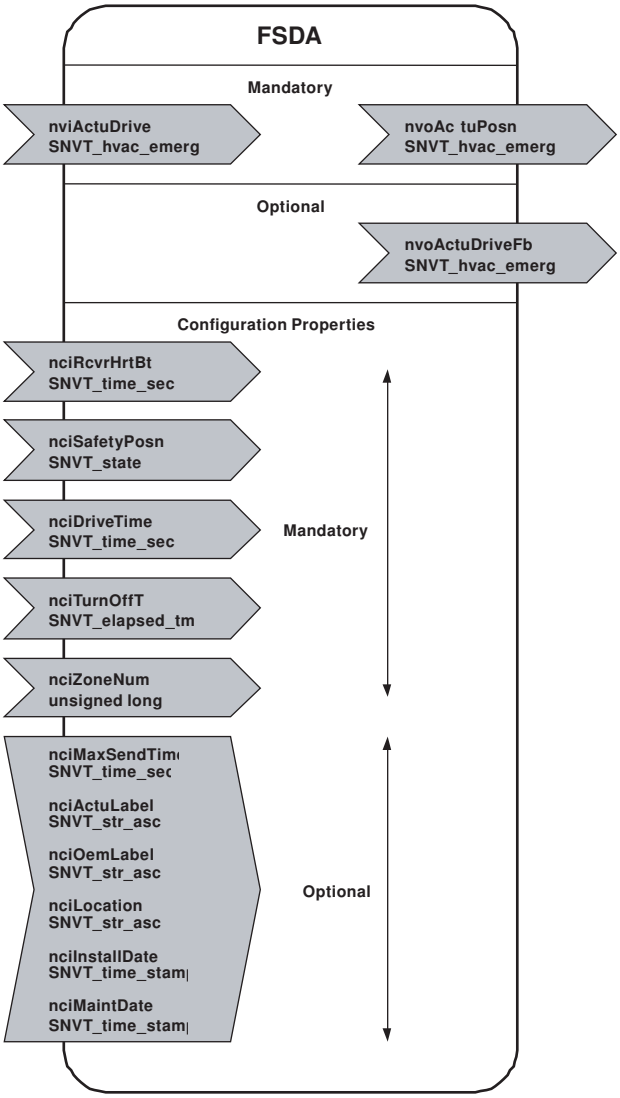
nvoStatus **SNVT_obj_status**

Output variable indicating the actual status of the actuator.

nvoFileDirectory **SNVT_address**

Output variable that shows information in the address range of the Neuron chip.

http://www.lonmark.org
Details see «Technical Ressources»



Fire Smoke Damper Actuator Object (FSDA #11001_10)

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.

nciRcvrtHrtBt **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.).

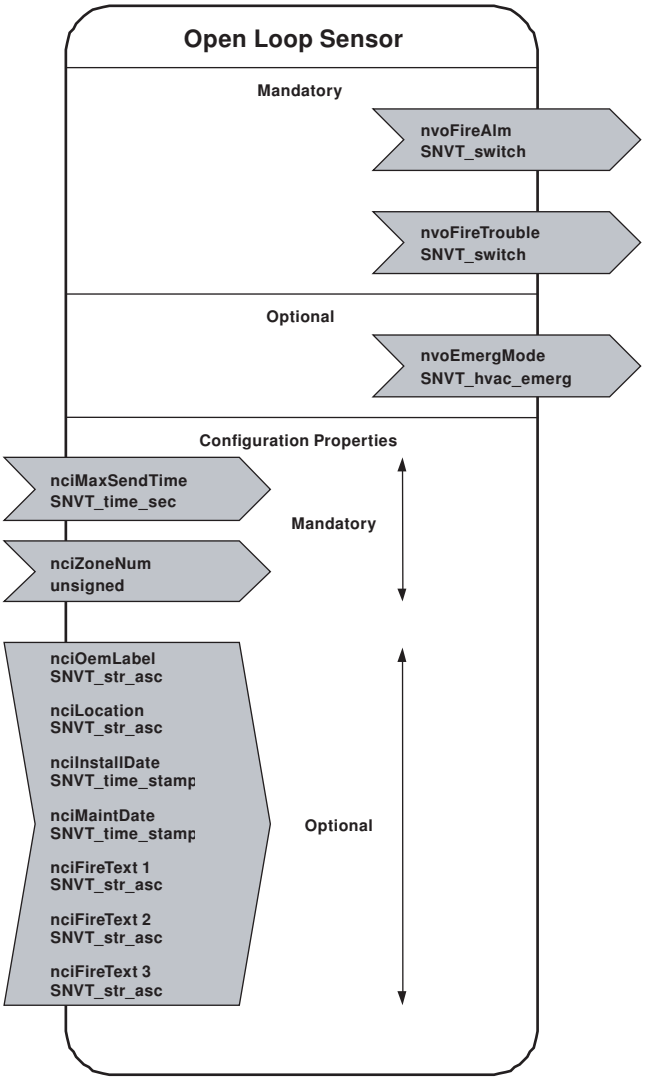
nciLocation **SNVT_str_asc**

Location string stored in the actuator (Contents: Location positi-on, fire zone, etc.).

http://www.lonmark.org
Details see «Technical Ressources»

Functional Profile as per LONMARK®

(Continued)



Open Loop Sensor Object (Fire, Smoke)

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).

http://www.lonmark.org
Details see «Technical Ressources»

A detailed guideline for system integrators can be downloaded from www.belimo.ch as PDF.

Dimensions [mm]

Dimensional drawings