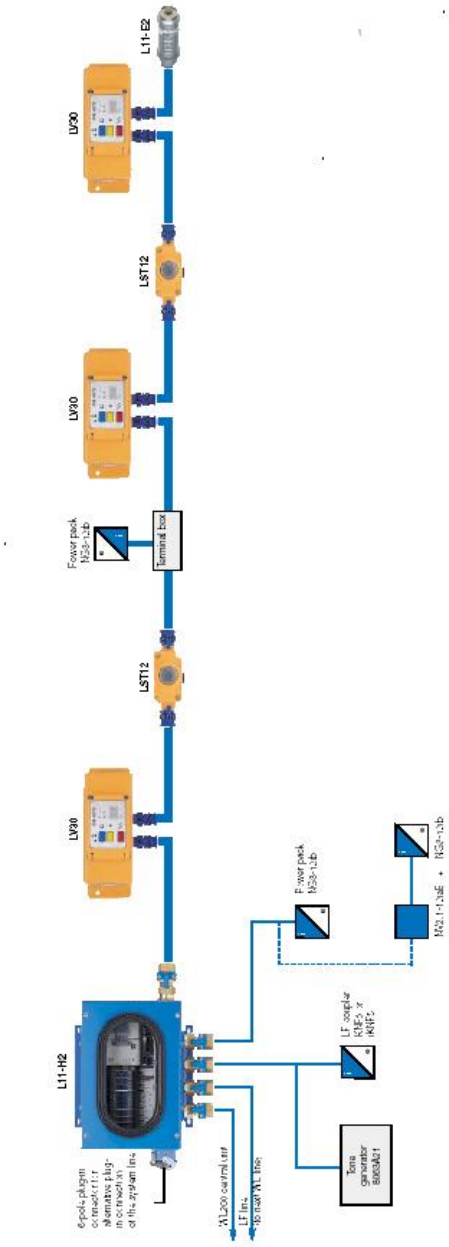
Product Information

FHF Bergbautechnik GmbH & Co. KG

Intrinsically safe loudspeaker system L111



Ordering data

Designation	Type	Item no.
Power supply unit	NG3-12ib	371 008 2 x AX
Main station	L11-H2	128 814 41 AX / 41 01 AX
Speaking station	LV30	125 300 5 x AX
Signal button	LST12	128 610 01 AX
End unit	L11-H2	128 813 41 AX / 41 01 AX
e/i Coupler	KNF5	128 805 40 AX
Coupler	iKNF5	128 105 21 AX

- **Cost-efficient loudspeaker system**
- **Line-type configuration**
- **Connection of up to 40 devices to the network possible per each supply section (LV30 / LST12)**
- **Speaking station with 2 loudspeakers**
- **Approved total of up to 6 supply sections**
- **After power supply disconnection, rechargeable battery based operation of category IM1, type of protection EEx ia I**
- **Type of protection: IM2 EEx ib I**

Description, application and functioning

The loudspeaker system L111 enables a high volume communication and signalling in the hard coal mining industry e.g. for

- belt conveyors
- monorail conveyors
- ropeways
- shuttle cars.

The L111 system is a cost-efficient loudspeaker system. Its design conforms to category / type of protection I M 2 EEx ib I.

The circuits of the loudspeaker system L111 depend on the power supply unit(s) feeding them with power and conform to category I M 2, type of protection EEx ib I.
The intrinsically safe system circuits which remain operable after disconnection of the power supply units (in case of an increased methane content), i.e. the intercom (LF) circuits and their connecting circuit / audio frequency circuit (wires WL1 and WL2 of the trunk cable), which are supplied with power from the rechargeable batteries of the speaking stations, then conform to category I M 1, type of protection EEx ia I.

The audio frequency circuit (a, b) conforms to category I M 1, type of protection EEx ia I.

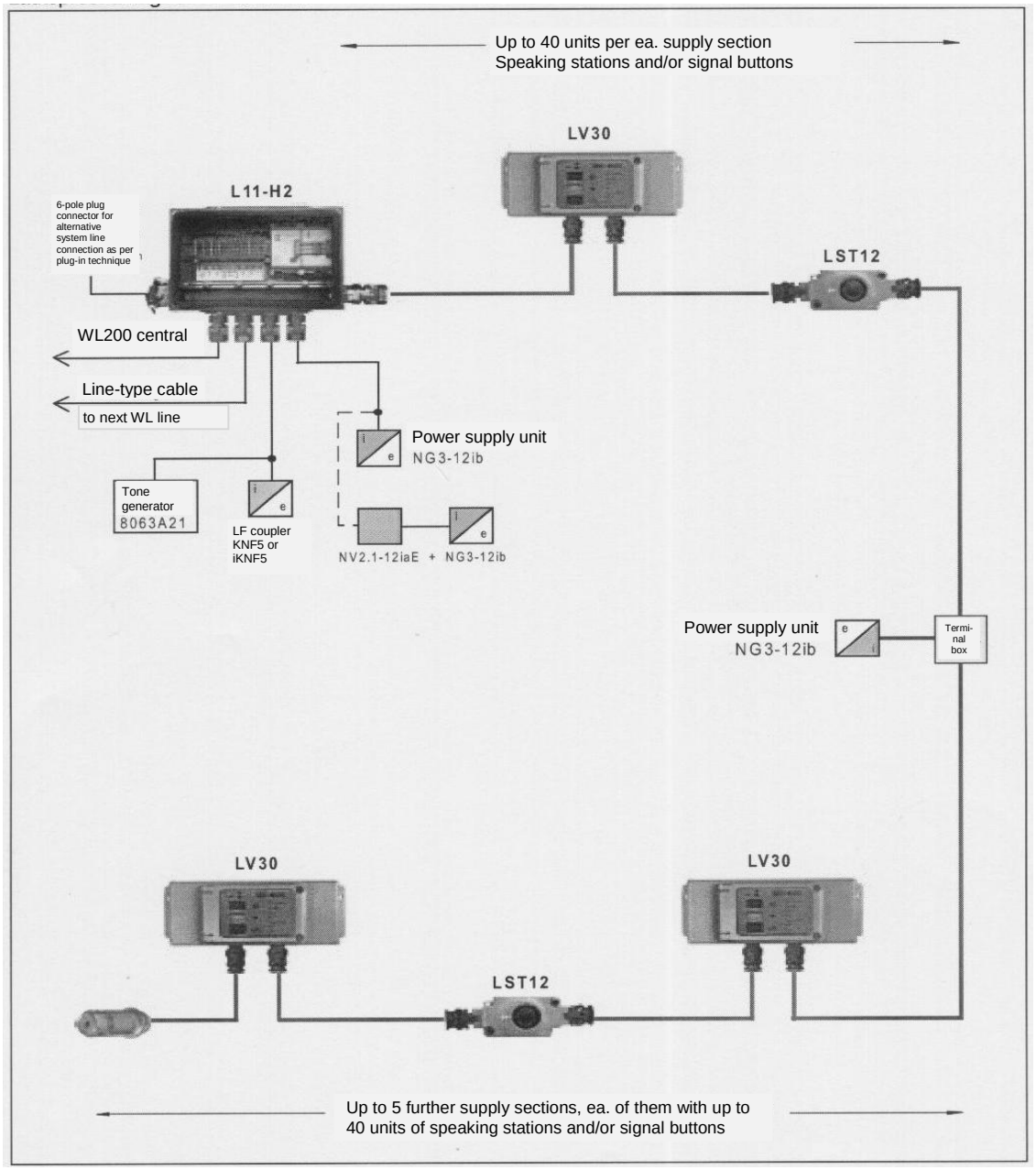
Functioning

The intrinsically safe loudspeaker system L111 is configured as a line-type system, with the individual system components connected with each other via the 4-wire system line (e.g. L2YY(Q)Y 2x2x 1.5mm^2).
The main station L11-H2 constitutes the starting point of the system line and supplies all devices connected to this cable with current which is fed by the power supply unit of type NG3-12ib connected to the main station L11-H2. Additionally, the main station L11-H2 serves as connecting point for the cables for controlling the start-up warning and the cables for coupling the L111 system to a WL200 switching system or other WL systems to generate a communication system with sectional start-up warning.
The main station L11-H2 monitors the WL line for an open circuit and generates the required acoustic signals for "faulted WL line" and "start-up warning" which are passed on the system line to the existing speaking stations where they are emitted at high volume.
The end unit L11-E2 forms the end of the system line. The following devices can be looped in at a position at choice between main station L11-H2 and end unit L11-E2:

- LV 30 speaking stations with two loudspeakers
- LST 12 signal button to emit the signal tone (1980 Hz / -6 dB).

Maximally 40 units of type LV30 and/or LST12 can be looped into one supply section of the system line, and maximally 6 supply sections are approved. The DC wires of the system line between the supply sections must not be connected with each other.
The max. length of the system line of one supply section is reached, when an 8 V supply voltage is obtained or failed to be obtained at the end; this length strongly depends on the number of the integrated devices which are supplied through this system line.
Each speaking station has an integrated rechargeable battery which is constantly charged via the system line. On the one hand, this rechargeable battery enables a high volume at a low current consumption from the system line and, on the other hand, it enables a temporary emergency operation of the L111 system in case of a mains failure or disconnection.
If e.g. the mains voltage is disconnected due to an increased methane content, all speaking stations will remain operable by means of their integrated rechargeable battery certified for degree of protection EEx ia I.

System overview



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