HASLER

PRODUCT information

Electroacoustic supervision of the filling level in ball grinding mills

Sound1

Electronic Ear

- Increase productivity
- Reduce power consumption per ton of product
- Reduce wear of grinding media
- Improve the uniformity of the product
- High performance

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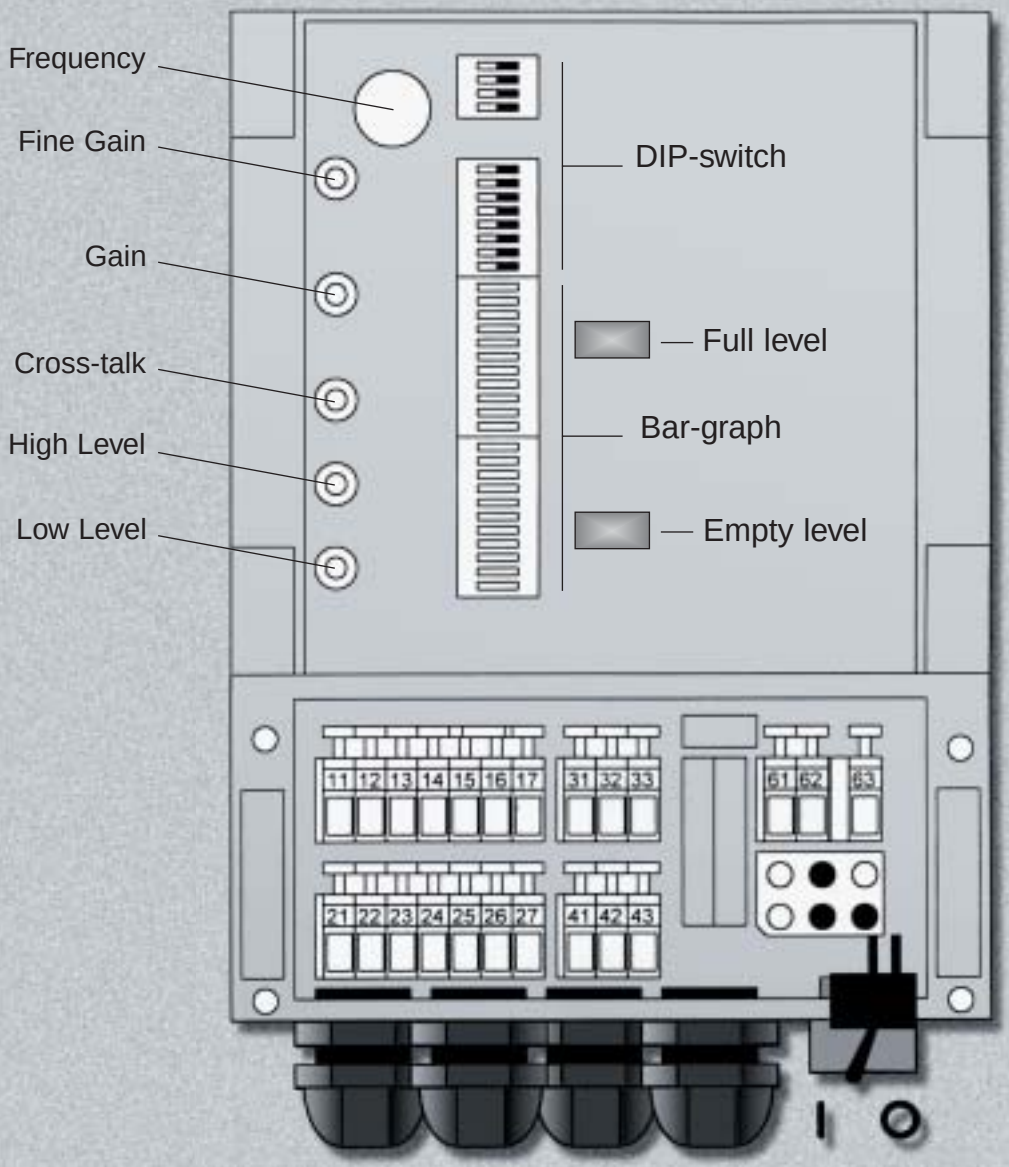
Electronic Ear

The Electronic Ear senses the noise of the mill. This noise varies with the product and the filling level of the mill. The Ear consists of a very sensitive microphone installed at the mill inlet, at the grinding ball impact point, and as close as possible to the mill shell. The foam of the Electronic Ear must nearly touch the mill shell between two rows of bolts. The head of the microphone is 4-5 cm in the rear, and is protected by a fine grid covered by a thin plastic film at the level of the foam coat. Therefore, nested in foam, the microphone is insulated from the interfering noises existing in the plant. The front cover prevents the entrance of dust, the accumulation of which would disturbe the response of the Electronic Ear.



- The electronic heart of the HASLER Ear includes a noise amplifier of adjustable level with a selectable band width and frequency range. At the initial setting the frequency range is selected so that, in normal operation, the amplifier delivers a maximum signal. Then the amplifier level is adjusted so as to have a workable measure signal. The amplitude of this signal is represented on the bar-graph display.

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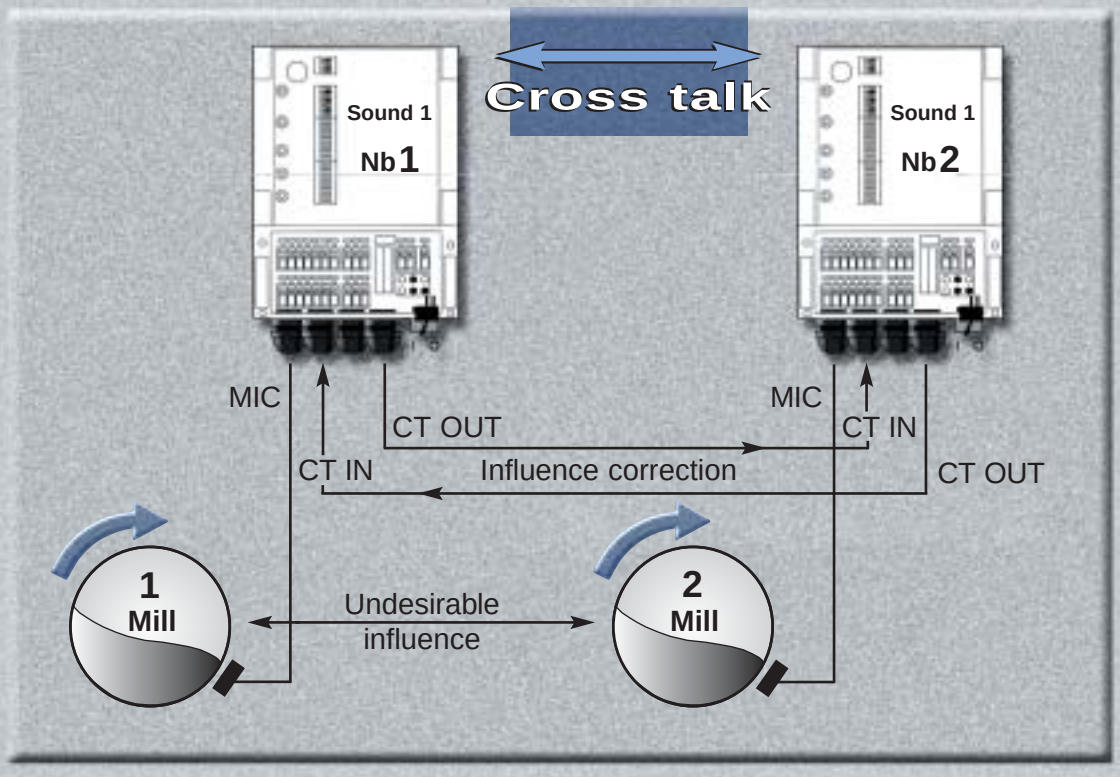
Cross talk compensation

- This feature allows to compensate interfering noise signals from adjacent mills.
- In the example below, part of the output signal from Electronic Ear nb.1 is used to compensate the noise of interference of this mill in Electronic Ear nb. 2 and vice-versa.
- The influence of the cross talk compensation is adjustable between 0 - 17 %.
- A 0-6 V signal is generated, regardless of the configuration and it is used to correct the indication of another monitor. This signal is called CT OUT, an abbreviation for Cross Talk OUTput.



The **Sound 1** enclosure has two metal clips on the back side, allowing to quick-lock it on a standard DIN profile for easy. This makes it very easy way to mount the **Sound 1** in difficult conditions, like onto concrete walls or metallic structures.

Several **Sound 1** enclosures may be juxtaposed and interconnected through side pieces. In this case, the length of the standard DIN profile is adapted to the number of Sound 1 to be locked onto it. Wiring may also be connected through one box into another, allowing to wire user signals from several **Sound 1** with a single multi core cable.

Technical Specifications

Power supply :	
• 230 V, AC input :	230 VAC ± 15 %, 47...63 Hz, 25 W, 400 mAT Fuse.
• 115 V, AC input :	115 VAC ± 15 %, 47...63 Hz, 25 W, 400 mAT Fuse.
• 24 V, DC input :	19...38 VDC 20 VA, 1 AT Fuse.
Input level for full scale output :	
• Gain Range 1 :	15 mVpp...70 mVpp.
• Gain Range 2 :	65 mVpp...300 mVpp.
Operating frequency span :	48 positions between 300 Hz and 4600 Hz (4 bands).
Cross-talk correction :	0...17 % of full scale.
Voltage output :	0...6 V or 0...10 V on a minimum load of 1 kΩ.
Current output :	0/4...20 mA on a maximum load of 600 Ω.
Relays contacts :	
• Max. switching current :	2 A, AC.
• Max. switching voltage :	220 VDC, 250 VAC.
• Max. switching power :	125 VA (60 W).
Temperature :	According to IEC 654-1.
• Operating :	-20°C to +60°C.
• Storage :	-40°C to +70°C.
Humidity :	According to DIN40040 class F 95 % at 25°C non-condensing.
EMI rating :	±2 kV on the signal, ±4 kV on the 220 VAC power supply.
Case size :	Width 134 mm, height 194 mm, depth 82 mm.
Full size, profile mounted :	Width 134 mm, height 270 mm, depth 100 mm.
Protection grade :	IPW657 (IP65).
Weight :	1400g.

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