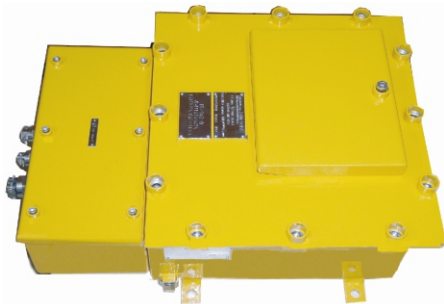




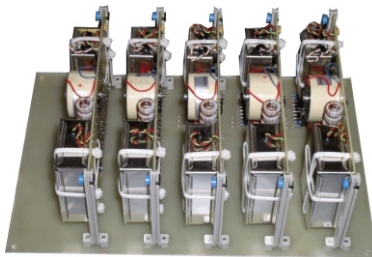
SEZ – System for telemetry of seismic data



Certificate: ATEX



SAZ-D1 (SLZ-D2) Mine case



SAZ-D1 mine base plate with 5 SAZ-Z1 cards

Use:

The system serves for remote sensing and transmission of weak seismic-acoustic and seismological signals from inaccessible locations outlying deeply into the terrain, where a local power supply source is unavailable and where due to the inaccessibility of the terrain neither additional installation of electrical supply network nor the installation and maintenance of chemical (battery) supply sources is possible. A typical example is its use in deep mines.

Description:

The transmission part is designed in a firm EX d I enclosure and forms a single structural whole – a mine case – with the input part. The input of the device is symmetric, galvanically separated from the transmission part (from the telephone line) and is designed as intrinsically safe with Ex ia I level. The maximum length of the connecting cable is 1.5 km depending on local interference conditions and the cable quality.

The mine part is electrically connected with the surface part by a telephone line (1 pair per channel) which transmits both the amplified signal from the mine to the surface and supply from the surface to the mine. The maximum length of the telephone line is 8 km depending on local interference conditions and the cable quality. Individual line channels are galvanically separated.

The system output is asymmetric and adjusted for PC A/D inputs. Outputs are galvanically separated from the transmission part and can be galvanically connected in an A/D converter.



SE-RM1 Surface switchboard with 6 SAZ-T1 seismic-acoustic boards and 6 SE-S1 supply boards

- SEZ – system for telemetry of seismic data
- SE-RM1 – surface distribution board for seismic-acoustic (SAZ) and seismological (SLZ) system
- SE-V8 – Surface double vessel for 8 SAZ or SLZ channels
- SE-S1 – Surface supply board for 1 SAZ or SLZ channel
- SAZ – Seismic-acoustic system (150 – 4000 Hz)
- SAZ-T1 – Surface seismic-acoustic evaluation board for 1 channel
- SAZ-Z1 – Mine seismic-acoustic card for 1 channel
- SAZ-D1 – Mine seismic-acoustic case for 5 channels, 1-5 SAZ-Z1 cards can be applied
- SAC-1A, SAC-1B – Seismic-acoustic sensor, a geophone
- SLZ – Seismological system (0 – 100 Hz)
- SLZ-T2 – Surface seismological evaluation board for 1 channel
- SLZ-Z2 – Mine seismological card for 1 channel
- SLZ-D2 – Mine seismological case for 5 channels, 1-5 SLZ-Z2 cards can be applied
- SM-3 – Seismological sensor, seismometer

The catalogue has only those selected important parameters for your final decision. For project designs always ask for the user's guide for this product and any engineering consultation about possible uses.



SEZ – Seismic Telemetry System

Technical Parameters common for SAZ and SLZ:

Model	I M2 (M1) Ex d e [ia] I
Supply voltage of the mine card	40 - 80V DC
Consumed current of the mine card	20 - 30mA
Ambient temperature	0°C - +40°C
Relative humidity	Max. 98% w/o cond.
Dimensions	380 x 550 x 200 mm
Weight	30kg

Intrinsically safe parameters of the input for geophones/seismometers:

U _o	0.8V
I _o	0.4mA
P _o	80μW
C _o	100μF
L _o	100mH

SAZ use and description:

The SAZ system serves for transmitting mine seismic-acoustic signals to the surface evaluation station. The system consists of a SAZ-D1 mine case, where 1 – 5 SAZ-Z1 cards are located for 1 – 5 geophones. It also contains a SE-V8 surface double vessel, where 1 – 8 SE-S1 supply boards are placed and 1 – 8 seismic-acoustic SAZ-T1 evaluation boards. Optionally, SLZ-T2 boards for the seismological system can be optionally placed in instead of SAZ-T1. SE-RM1 switchboard can hold up to 6 SE-V8 double vessels, which means SE-RM1 can hold up to 48 seismological or seismic-acoustic channels. Another SE-RM1 switchboard is necessary for further extension. Listening-in to acoustic signals is performed by connecting plugs to KRONE bands.

SLZ use and description:

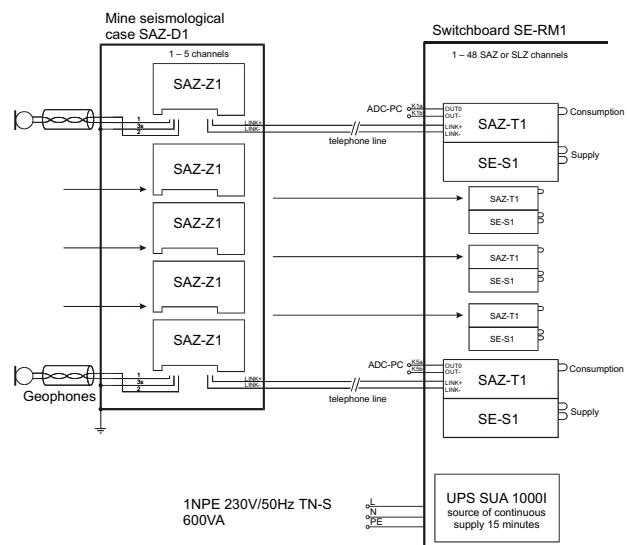
The SLZ system serves for transmitting mine seismological signals to the surface evaluation station. The system consists of the SLZ-D2 mine case, where 1 – 5 SLZ-Z2 cards are located for 1 – 5 seismometers. It also contains a SE-V8 surface double vessel, where 1 – 8 SE-S1 supply boards are placed and 1 – 8 seismological SLZ-T2 evaluation boards. Optionally, SAZ-T1 boards for the seismic-acoustic system can be optionally placed in instead of SLZ-T2. SE-RM1 switchboard can hold up to 6 SE-V8 double vessels, which means SE-RM1 can hold up to 48 seismological or seismic-acoustic channels. Another SE-RM1 switchboard is necessary for further extension.

Technical Parameters of SAZ:

Input SAZ-Z1 impedance for connecting a geophone	4400Ω between inputs 1 and 2
Maximum output voltage on output SAZ-T1	20Vpp
Input impedance of the following device on SAZ-T1	>5kΩ
Maximum cable length (SYKFY, UTP, SAZ-T1 and PC types)	2m
Maximum cable length (MK type) between a geophone and SAZ-Z1	1.5km
Maximum cable length (TCEK...00.8 mm) between SAZ-Z1 and SAZ-T1	8km

Technical Parameters of SLZ:

Input SLZ-Z2 impedance for connecting a seismometer	4400Ω between inputs 1 and 2
Maximum output voltage	4.4Vpp (±2.2V)
Input impedance of the following device on SLZ-T2	>5kΩ
Maximum cable length (SYKFY, UTP, SLZ-T2 and PC types)	2m
Maximum cable length (MK type) between a seismometer and SLZ-Z2	1.5km
Maximum cable length (TCEK...00.8 mm) between SLZ-Z2 and SLZ-T2	8km
Frequency range of SLZ-Z2 system/SLZ-T2 filter switched on	0-30 Hz for the drop of 3 dB
Frequency range of SLZ-Z2 system/SLZ-T2 filter switched off	0-100 Hz for the drop of 3 dB



The catalogue has only those selected important parameters for your final decision. For project designs always ask for the user's guide for this product and any engineering consultation about possible uses.