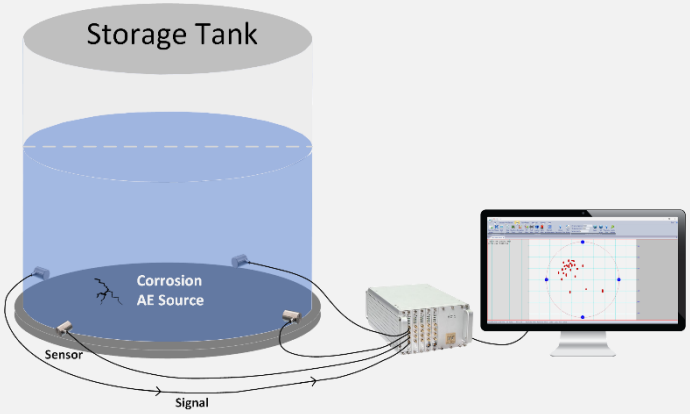
SAEU3H Multi-channel Acoustic Emission Detection System

SAEU3H multi-channel AE system is composed of a certain number of 4-channel acoustic emission acquisition boards, SAUE3H chassis, AE sensor, AE preamplifier, SWAE software and other accessories.

Working principle: The AE sensor converts the surface displacement signal of material into electrical signal through piezoelectric effect, and the preamplifier amplifies the electrical signal from the sensor to increase the signal-to-noise ratio of the signal to facilitate signal transmission. The acquisition and processing board performs A/D conversion and other analysis and processing of the signal, and then displays and further processes the AE data through SWAE software.

SAEU3H multi-channel AE system is independently developed and produced by Qingcheng AE Institute. The product uses USB3.0 communication mode to connect the acoustic emission host to the upper computer, with a data pass rate of up to 600MB/S. SAEU3H system's strong data acquisition and data processing capabilities are applicable to most of the industrial testing applications, as well as to the waveform data requirements of laboratory material research and other fields.



AE sensors

AE sensor is used to convert the displacement of the material surface into a voltage signal through the piezoelectric effect. Qingcheng AE manufactures various types of AE sensors including general resonant sensor, integral preamplifier sensor, wideband sensor, intrinsically safe sensor, high temperature sensor and also accept the special customized sensor according to the needs of customer.

AE Preamplifier

The role of the preamplifier is to amplify the tiny electrical signals from the sensor to improve the signal-to-noise ratio of the signals so that they can be transmitted over long distances. Qingcheng offers two different models of preamplifier, PAS and PAV.

Accessories

The accessories of SAEU3H acoustic emission system mainly include: magnetic hold-downs, coaxial cable, PPS preamplifier power supply, coupling agent etc. For more information, please visit our website or contact us.

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AE acquisition board

adopts the design of 4 channels per board. Each channel has an independent ADC of 10M/S and 16bit, high-speed FPGA chip signal processing, and 1Gb independent cache card to ensure no data loss. Unique hardware real-time digital filter, freely control the signal width.

Technical parameters

Dynamic Range	90 dB
Host noise	<10dB（Free of load）
Max. signal amplitude	100dB
Waveform Sampling points	Max. 128 k/channel
Trigger mode	Threshold trigger, Synchronization trigger, ex-parameter trigger, servo trigger
Analog filter	20kHz, 100kHz, 400kHz high-pass filters, 100kHz, 400kHz, 1200kHz low-pass filters
Digital filter	1KHz-2.5MHz
AE signal processing	Each board has AE feature parameters real-time extraction function
AE signal input range	±10V · Can adjust the signal input voltage range down to ± 5V, ± 2V, ± 1V, ± 0.1V,
Response frequency	1kHz-2.5MHz
Output power supply	28V or 5V or 0V
Input impedance	50Ω
Power consumption	10.5W (4 channels for continuous sampling)
AE parameters	Arrival time, AMP, Counts, Rise counts, Duration, Energy, Rise time, RMS, ASL

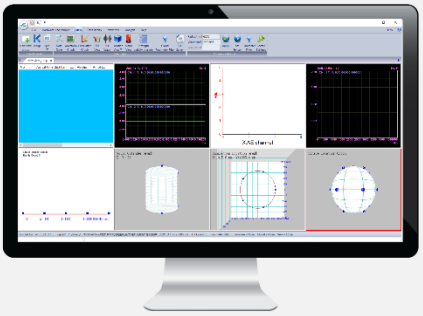
Chassis

We have three kinds of chassis, 4-channel, 20-channel and 48-channel chassis. The chassis adopts high-grade PXI plug-in function module structure, which can be used with different quantities of acquisition boards as the actual needs. and multiple independent chassis can be cascaded through HDMI interfaces to form a large channel number system, which can be extended to more than 100 channels.

SWAE software

SWAE AE software combines AE signal real-time acquisition, data analysis and replay analysis. It is designed based on Windows OS, and it is compatible with SAEU3H series detecting products and RAEM series monitoring products.

- Friendly interface, simple operation
- Powerful digital filtering function
- High degree of customization, various acquisition configuration and visualization of AE parameters and waveform.
- Various 3D positioning diagram display, linear, planar, cube, cylinder, tank bottom, sphere location etc.
- FFT, wavelet, intensity and activity, clustering analysis etc.



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