



# SGC 04 4-Channel Smart Gain Control

## SGC AS 01 Ambient Sensor



The SGC 04 4-Channel Smart Gain Control provides an effortless and automated solution to adjusting the PA announcements volume to be audible no matter what the ambient noise level is. The unit was developed to be deployed in Transportation hubs (airports, train stations, bus terminals and etc), factories, shopping malls and restaurants that tend to have unpredictable and varying ambient noise due to the sudden presence of large crowds of people.

SGC 04 features 4 independent channels of Smart Gain Control completely user programmable. Each channel shall have a dedicated input for its own SGC AS 01 Ambient Noise sensing microphone. The unit analyses the ambient

noise from the environment and adjust the gain of the announcements louder as required. This ensures that the announcements are louder than the ambient noise and improves speech intelligibility.

The SGC 04 unit is designed to be placed in between the Preamplifiers and the power amplifier. The SGC 04 unit is supplied with a Software engineering tool User Interface (UI). The tool allows users to configure the unit such as setting the 'Ambient Threshold Value' for each individual channel, attack time, hold time and display the real-time ambient noise readings.

- 4 independent channel of automatic gain control.
- Digital Signal Processing (DSP) control of output volume based on the ambient noise level sensed by the SGC AS 01 Ambient Sensor microphone.
- Each channel shall allow input from a dedicated SGC AS 01 Ambient Sensor microphone.
- User-friendly Software engineering tool (UI) for quick and easy configuration of channel
- Monitor the ambient noise level dB via the Engineering Tool UI.
- Emergency override and automatic power failure bypass



SGC 04



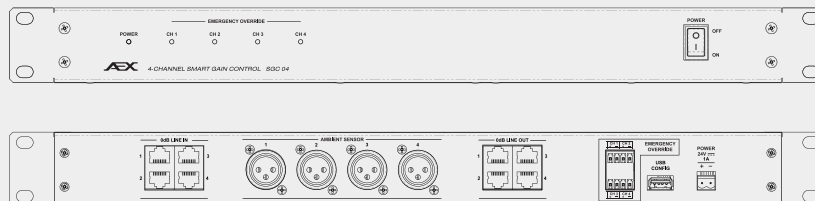
SGC AS 01

Technical Specifications

SGC AS 01	
Audio Signal Output	0dBV, 100Ω
Frequency Response	50 Hz – 16kHz
Directivity	Omnidirectional
Connector	3 pin terminal block (Balanced Audio)
Material & Finish	ABS, White
Power Requirement	9-25Vdc, 15mA Phantom power Supplied via SGC 04
Dimensions (W x H x D)	86 x 86 x49mm

Technical Specifications

SGC 04	
Power Requirement	24 Vdc, 0.25A
Frequency Response	20 – 20,000 Hz (±3 dB)
Sampling Frequency	48 kHz
Dynamic Range	Over 90 dB
Distortion	Under 0.01%, 1 kHz, 0 dBV input/output (20 – 20,000 Hz BPF)
Input	Sensor input (Ambient noise sensor microphone input): 22V Phantom electronically-balanced, XLR female. Input Channel 1-4: 0 dBV Electronically-balanced, RJ45 Connector
Output	Output Channel 1-4: 0 dBV, 150 Ω, Electronically-balanced, RJ45 Connector
A/D Converter	24 bit
D/A Converter	24 bit
Signal Processing	Ambient noise control function: Sensor input reference level fine adjustment function, Signal processing bypass via emergency override dry contact, Sample time setting (GUI configurable 6 s, to 120 min), Fixed gain setting (0dB to +24 dB), Fixed ambient noise measuring frequency window (250 – 4500 Hz, 8th Order bandpass, speech)
Configuration	Engineering Tool User Interface (UI)
Override and Bypass	4-channel emergency override dry contact input with LED indication   Input/Output bypass function during power failure
Operating Temperature	0°C to 40°C
Finish	Mild Steel Casing, Epoxy Coated Textured Black
Dimensions	483 (w) x 44 (h) x 200 (d) mm
Weight	2.9 kg



### Engineers' Specification

The Smart Gain Control unit shall provide automatic gain control and adjustment of the PA announcement volume based on the detected ambient noise level. The unit shall provide 4 independent channels of Smart Gain Control, all completely user programmable via a user-friendly software. Each channel shall feature a dedicated input for its own ambient noise sensing microphone. The ambient noise sensor mic input shall provide 22V Phantom power to allow the noise sensing mic to travel a long distance back to the SGC controller unit. The Ambient Noise sensing microphone designed to work with the unit shall be phantom powered

electronically balanced electret microphone type. The unit shall feature a 24bit Analogue Digital Converter (ADC) and a 24bit Digital Analogue Converter (DAC). A Digital Signal Processor (DSP) unit shall be the core processor. The DSP unit shall provide ambient noise measurement analysis and gain control of the audio. The unit shall feature 4 individual emergency override to bypass the automatic gain control during an emergency. In the event of a power failure the unit shall also automatically bypass the DSP circuit to ensure announcements are still capable of going through.