VCA VOICECOM CONTROLLER

COMMUNICATIONS

Applications

The Voicecom Controller (VCA) is the master controller for the Ampcontrol Voicecom system. The Voicecom system can be easily configured and interrogated from the VCA. The VCA also allows the Voicecom system to be interfaced with a control system such as a PLC, which enables remote monitoring.

Typical applications for the communication system include longwall and conveyor communications, point-to-point intercom and messaging systems. The system provides pre-start warning alarms, push to talk voice intercom and pre-recorded voice message paging functions.
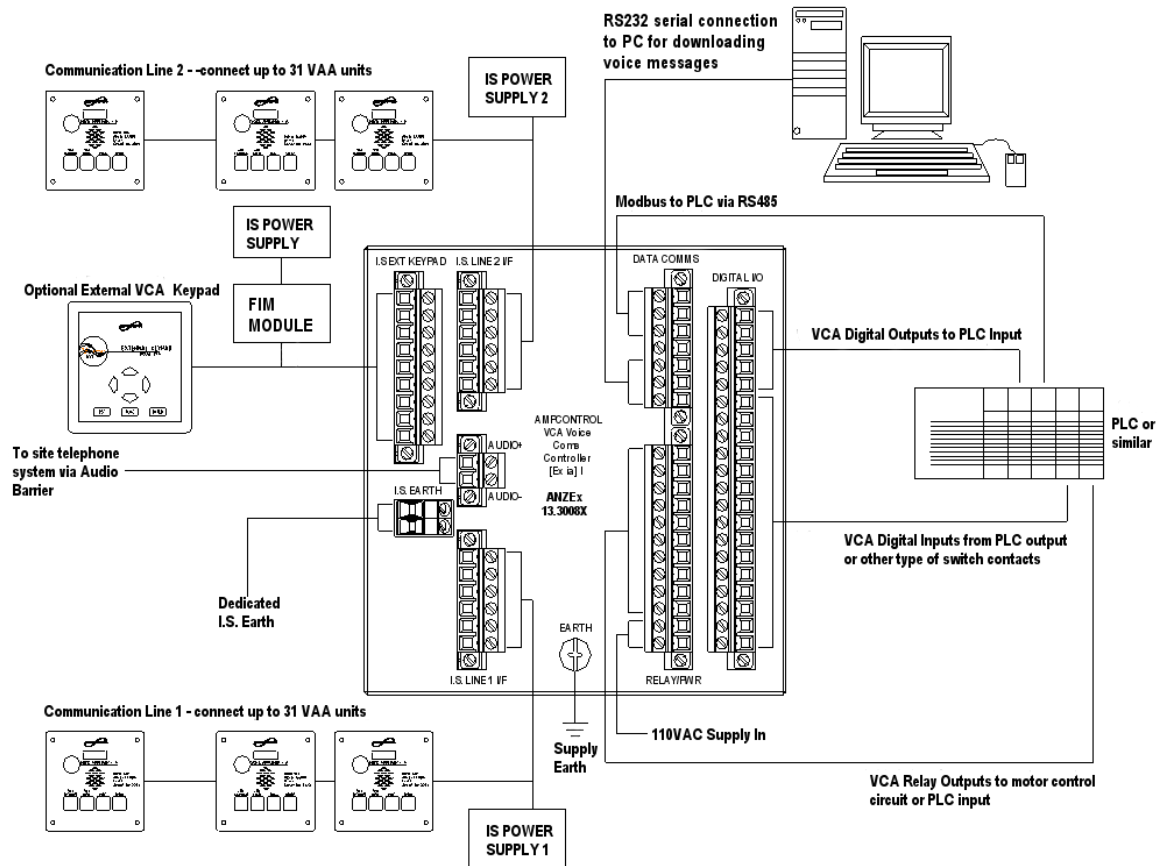
Features and Benefits

- Two communication lines, each supporting up to 31 VAA amplifiers
- Supports up to 255 user recorded messages
- Supports messages saved in the standard WAV audio format that can be recorded using any freely available PC based audio software and downloaded into the VCA via its RS232 interface
- Modbus RS485 interface for PLC/SCADA connection allowing system monitoring, trending and control of voice messages
- Hard wired digital I/O interface for controlling pre-start alarm functions and voice messages
- Intrinsically Safe remote keypad digital inputs for easy integration with flameproof enclosures
- Pre-start warning alarm, PTT intercom and voice message control in a single, compact unit
- Independent pre-start alarm control on two lines allows one central unit for longwall operations (eg separate prestart control for BSL and AFC operations)
- Eight selectable pre-start tones to distinguish between different equipment (eg different pre-start tones for BSL and AFC operations)
- Pre-start warning alarm confirmation operation from every VAA
- Monitoring of battery voltage and battery current from every VAA allows the user to identify aging batteries and replace them during a maintenance shift
- Monitoring of line voltage from every VAA allows line faults to be identified and located quickly
- Speaker volume level at every VAA can be controlled from the VCA and altered to meet location requirements
- Amplifier turn-on threshold level at every VAA can be controlled from the VCA to prevent false amplifier operation
- Auxiliary audio interface allows connection to telephone systems using optional certified barriers.

Description

The Ampcontrol VCA controls two communication lines with up to thirty-one (31) Voicecom Amplifiers (VAA) per line. The controller provides seamless audio communication between the two communication lines, controls and monitors pre-start alarms via a digital communication link and allows the user to set VAA amplifier parameters such as volume, audio threshold and battery charging current.

The VCA is designed to be panel mounted and provides IP65 protection once installed.

VCA Controller Technical Datasheet
VCOMB002 Rev 7
01/03/2019

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Typical Connection Diagram (refer to Voicecom Product Manual for detailed information)

Specifications			

Certificates/Approvals	
Type	[Ex ia] I (Intrinsically Safe)
Certificate Number	ANZEx 13.3008X

Power Supply	
Voltage	110VAC +/- 20%, 50/60Hz
Power Rating	<8W

Environmental Conditions	
Temperature Range	0°C to +50°C

Mechanical	
Dimensions (HxWxD)	155 x 155 x 138mm (135 x 135mm panel mount cut-out)

IS Parameters[1]

Input Parameters

Parameters	Non-IS Connectors COMMs, DIGITAL I/O, RELAY/PWR	IS LINE I/F Connectors LINE 1, LINE 2 (0V, Audio, Call, -VLine, -VPS)	J1 – IS EXT KPD Connector (KP1, KP2,…KP8, COM)
Maximum Non-IS Voltage Um	250V		
Maximum Input Voltage Ui		19V	19V
Maximum Input Current Ii		3A	
Maximum Input Capacitance Ci		Negligible	Negligible
Maximum Input Inductance Li		Negligible	Negligible

Output Parameters			
Parameters	**IS LINE I/F Connector: AUX** (Audio+, Audio-)	**IS LINE I/F Connectors LINE 1, LINE 2** (0V, Audio, Call, -VLine, -VPS)	**J1 – IS EXT KPD Connector** (KP1, KP2,…KP8, COM)
Maximum Output Voltage Uo	8.94V	Parameters of the certified power supply used to connect to LINE 1 / LINE 2 (19V max.)	Parameters of the certified power supply used to connect to J1 (19V max.)
Maximum Output Current Io	23mA		
Maximum Output Capacitance Co	1.8µF		
Maximum Output Inductance Lo	38mH		
[1] Refer to Certificate of Conformity ANZEx 13.3008X for all conditions of certification.			

Digital I/O – for status, pre-start and message initiation	
Inputs	14 (opto-isolated, 2 for pre-start control, 12 for voice message initiation)
Voltage	12-24VDC, 24VDC nominal (28VDC max.)
Current	<6mA ($4.7k\Omega$ input impedance per input)
Outputs	4 (common collector, open emitter opto-outputs)
Voltage	24VDC nominal (28VDC max.)
Current	<11mA ($2.2k\Omega$ collector impedance per output)

Relay Outputs – for status and pre-start confirmation	
Relay	4 (2 C/O, 2 N/O)
Voltage	250VAC max.
Current	5A

Communications	
Type	RS232 to PC (dedicated for Voice Message Bank downloading only) RS485 to PLC (Slave Modbus RTU protocol)
Message Bank Memory	
Capacity	16MB Flash Memory (190 seconds of messages at 44kHz/16-bit CD audio quality or 1520 seconds of messages at 11kHz/8-bit uLaw AM audio quality)
No. Messages	255 max.
Supported Audio Files	WAV

IS Interfaces	
L1 and L2 Communication Lines	Four terminals for communication line (0V, Audio, Call, -VLine). Two terminals for I.S power supply connection (0V and –V PS1)
Auxiliary Audio Interface	Two terminals for bi-directional connection to external telephone system via optional certified barriers
Remote Keypad Interface	Nine terminals for connection to Remote Keypad with I.S. power supply
Earth	Two terminals for minimum 2x4mm2 earth wires to local I.S. Earth.

Ordering Information	
Part Number	**Description**
101269	CONTROLLER VCA VOICECOM ANZEx

Accessories	
Part Number	**Description**
120654	KEYPAD VOICECOM VCA REMOTE
142315	MODULE FIM FIELD INTERFACE 1W IECEx
121100	MODULE VIA VCOM AUDIO ISOLATION
121225	S/ASSY PCB VRA 2 TO 4 WIRE VOICE AMP